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The Charles MacKay Lecture.

THE DEVELOPMENT OF THE AUSTRALIAN PEOPLE.

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THE Charles MacKay lectureship was founded with the declared purpose that the lecturer should "deal with the history of medical science and the history of mankind".

I shall in this lecture tell a simple story with no new fact—a familiar tale with, perhaps, some new aspects. It will be a general picture only; the details of the story will be filled in from year to year by others.

But first I shall tell of Charles MacKay. He was born in Sutherlandshire in the north of Scotland in 1806, was a teacher by profession, having been educated at the University of Aberdeen, and arrived with his wife and family in Melbourne in 1852. Whilst in Melbourne he was offered the position of vice-principal of the newly established Scotch College, but owing to indifferent health he refused the offer and settled in Kilmore, the centre of a large Highland population, where he died on September 19, 1863, aged fifty-seven years. An obelisk, erected by the local inhabitants and old scholars and friends throughout Victoria after his death, still bears tribute to his character and worth. On the monument we read:

> This monument is erected by his friends as a token of respect for his piety—his moral worth—his gentle sympathy—and his unremitting diligence and success as a teacher.
>
> "Mark the perfect man and behold the upright, for the end of that man is peace.
>
> *SCHOLA CRUCIS ET SCHOLA LUCIS*".

What is History?

"The Greek *ἱστορία* is 'inquiry', and beyond inquiry of the truth of facts lies inquiry of the causes of facts and the bearing of facts. Facts in themselves are nothing. All records of the past are history. We want to know what a people was as well as what it did." (Tucker.)

What is the Australian People?

Who can answer that question in a sentence? Kipling, through the mouth of his Sikh officer, gives us a description:

> The Ustrelyahs spoke through their noses not little, and they were tall, dark men, with grey, clear eyes, heavily eyelashed like camel's eyes—very proper men—a new brand of Sahib to me. Most excellent horsemen, hot and angry, waging war *as* war, and drinking tea as a sandhill drinks water. Very proper men, with a just lust for war.

Masefield said of the Australians as he saw them at the Dardanelles:

> They were, however, the finest body of young men ever brought together in modern times. For physical beauty and nobility of bearing they surpassed any men I have ever seen; they walked and looked like the kings in old poems, and reminded me of the line in Shakespeare: "Baited like eagles having lately bathed." As their officers put it, "they were in the pink of condition and didn't care a damn for anybody".

And again, Froude said of us in 1885:

> The resources of the country—pastoral, agricultural, and mineral—are practically unbounded. The people, so clever and energetic, will not fail to develop them. Where all are, or may be, comfortably off, there is no dissatisfaction with the distribution of property. Considering that they have been nursed in sunshine and have never known adversity, the merit of the colonists is very great. In forty years they have done the work of centuries. They are proud of themselves and perhaps assert their consequence too loudly; but their country speaks for them, and they have fair ground for elation.

Here are three descriptive passages, limited, of course, in their application, but they will serve as an introduction to a review of some of the social aspects of the development of our people.

First, however, I should, in view of the nature of this lecture, say something briefly of history, especially medical history.

The first medical writer was Hippocrates—a name familiar enough. We may feel some interest in two of his patients, Pherecydes and Chartades, for the former suffered from typhus fever and the latter from typhoid fever; and these two diseases, more than any others, punctuate the medical story of exactly the first century in Australia. Another interesting detail is that Hippocrates uses the term "synocha" as a name for typhoid fever; this term was officially used in Australia until fifty years ago. Here is a continuity of twenty-three centuries.

In our study of history, our inquiry as to causes of facts, it is necessary to travel a long way into the past.

Another example of this continuity may be given. We all know the quotation, "Art is long and time is fleeting", and we believe that Longfellow first used it in his "Psalm of Life"; but note what Hippocrates said:

> Life is short, and the art long; the occasion fleeting, experience fallacious, and judgement difficult.

This formed part of his advice to those who practised the art of medicine.

In our searching of written records great care, even an honest scepticism is necessary. A very industrious German spent twenty-five years in writing a history of the geographical distribution of disease and completed a most valuable work of reference. It contains the statement that:

> The continent of Australia, up to 1838, had enjoyed an absolute immunity from smallpox; towards the end of that year the disease appeared in Sydney, having been imported probably from China.

This is inaccurate in several particulars; it is principally inaccurate because the epidemic was one of whooping cough in Tasmania and not smallpox in Sydney.

But what is the use of a study of the history of medical science and the history of mankind? Each individual will answer that in his own fashion, but if this study serves only to make us precise in our thinking and humble in our attitude, it will, for that alone, have been valuable. It will not be out of place, as our task today is a study of the development of the Australian people with, especially, a medical background, to recall what Descartes said more than 300 years ago:

> If ever the human race is lifted to its highest practicable level, intellectually, morally, and physically, the medical profession will perform that service.

What Determined Australia's History?

What events have determined the destiny of this continent? Unknown, except in the north and west by the Dutch, who despised what they had seen of it, it might have remained uninhabited by Europeans for another fifty years had it not been that Venus was due to make one of her periodical passages across the sun in June, 1769. The Royal Society, as we all know, equipped the expedition which ultimately led to the discovery of the eastern coastline. Had the Royal Society not been founded, or had the transit of Venus not occurred, all our history would have been different. Perhaps if Banks had not been a member of the expedition there would have been a different story to tell. During the eighteenth century England disposed of her convicts by transportation to the American colonies; the American War of Independence closed that outlet, and after much halting trial of various expedients, Banks suggested transportation to Botany Bay, this proposal being adopted.

Then followed the period of the Napoleonic wars, with their fluctuating fortunes. It is well enough known that the French sent out expeditions to Australia; it is also known that Napoleon gave orders that a squadron should be sent *"faire prendre la colonie Anglaise de Jackson"*, although this squadron never sailed. Scott discusses at length the question whether the French desired conquest and dominion over any part of Australia; whether

the expedition of 1800-1804 (Baudin's) had a political purpose. He believes that it had not; but he points out that in the European wars of that time "colonial possessions became pawns in the game", and he concludes his long argument thus:

> Traced back to decisive causes, the ownership of Australia was determined on October 21st, 1805, when the planks of the *Victory* were reddened with the life-blood of Nelson.

This continent might have been French and this lecture would then never have been delivered.

Conditions at the Beginning.

Now let us proceed to some brief survey of what this Australian people has been and what it has done.

The country to which our people came at the end of the eighteenth century presented no feature of medical interest except that negative feature of virginal purity. The immediate locality of the first settlement, presenting sharp contours, was well drained and, having never been the site of permanent human settlement, had none of the accumulated pollutions of centuries. The water supply, from a surface stream, was pure in quality and sufficient in quantity. Mosquitoes, always common in the bush and at Parramatta, did not appear in Sydney until about 1825 or 1826, but even if these had been present there are no grounds for assuming the existence amongst the aborigines of mosquito-borne disease. The climate was equable, without extremes, and the average temperature was high enough to obviate the necessity for close human aggregation to secure warmth.

The aborigines who inhabited the country before its settlement by the English colony, were a nomadic and scattered people of small total number. They suffered from individual maladies, but there is no record of epidemic or endemic illnesses affecting them before European settlement.

In order to understand the conditions created by the first settlement we must know the conditions in England at the time.

The end of the eighteenth century was marked by a great wave of economic expansion in England, with considerable growth of towns and cities and much respect of private property and the sternest repression of any attempt at social reform. So, in accordance with these two impulses, people were thrown into gaol and sentenced to transportation for what would be now considered as trivial police offences or legitimate aspirations towards the greatest good of the greatest number. The gaol accommodation was totally inadequate and overcrowding under the most insanitary conditions occurred. At the same time, and because of this, typhus fever (known then as gaol fever) became most unusually prevalent in England. The gaol and the gaol fever were the birthmarks of this infant nation.

One of the main objects of the British Government in the formation of the Colony of New South Wales, as expressed by the legislature as well as by leading philanthropists and the public Press of the period, was "to rid the Mother Country of the intolerable nuisance arising from the daily increasing accumulation of criminals in her jails and houses of correction".

Governor Phillip, on the day of landing, addressed the convicts. Three accounts of this address are available, but for the account with the most human note we are indebted to Surgeon Bowes, of the *Lady Penrhyn*. He reports that Phillip said:

> The industrious should not labour for the idle: if they did not work they should not eat: they would never be worked beyond their abilities, but everyone should contribute his share in order to render himself and the community at large happy and comfortable.

This was an exalted ideal of social service to lay down as a standard for a community just being born.

Four years later he said:

> I can recollect very few crimes during the last three years but what have been committed to procure the necessaries of life.

And in 1827, Cunningham, a very keen observer and one of our own medical profession, said:

> It is, besides, extremely curious to trace an intelligent, spirited, and well-principled population to sources as impure as the many criminals who have been outlawed hither, and whose offspring still form the majority of our people. In no part of the world is to be found a more respectable and intelligent community wherewith to associate than in the Australian Colony.

Diseases were introduced into the community from time to time, some ships experiencing a horrible mortality. The *Neptune* started from England in 1790 with 502 convicts; 158 died on the voyage. As a contrast, the *Lady Juliana* in the same year had 226 women convicts on board for a voyage of fifteen months, of whom only five died. Fifteen months' voyage from England to Australia is something in these days to wonder at. But the natural impulse towards health was great, as it has always been in this country.

This impulse towards healthy living was quite early a characteristic of the people, for the reporters of the College of Physicians, Bowman and McLeod, could write in 1829:

> To this may be added the general good ventilation of the dwellings, the exercise which is taken by people in the open air, and the frequent bathing that is resorted to by all classes.

Perhaps this was not invariably so, for the Governor in 1821 issued this order:

> As it is so very conducive to cleanliness and good health to bathe frequently in the sea, you are to make both the soldiers and convicts practise this wholesome custom, as often as the Assistant Surgeon may consider it advisable. But I strongly recommend that the whole of the convicts should be made to bathe in the sea at least every Sunday morning.

The government of the country was at first an absolute autocracy, as it was said, *"quod gubernator placet, legis habet vigorem"*. This was slowly changed into a more democratic system of government and even, as just indicated, the Governor's wishes were not always absolute.

So the first forty-two years of Australian history, that is, to 1830, presents to the student of medical history, or of national history, an absorbing picture showing progressive presentation of each of the major public health and social problems.

A community, taken for the most part from a grossly insanitary environment infected with typhus fever, cholera, dysentery, typhoid fever, tuberculosis and venereal diseases, was landed after a voyage of eight months, or longer, in a country free from all diseases or unhygienic conditions. This community was under the control of a governor whose powers were absolute, but whose commission contained no reference to the health of the people entrusted to his care. This community experienced scurvy from lack of proper food, carelessly polluted its own water supply, and ignored all exhortations to cease such pollution. This danger they should of their own volition and by their own self-restraint have made impossible.

An outbreak of smallpox occurred, the origin of which could not be traced.

The intestinal infections invariably associated with the absence of an ordered system of sanitation became endemic.

Whooping cough, mumps and influenza were introduced into a non-immune community and exhibited a special severity.

The commercial practice of unscrupulous transport contractors and their complete disregard for human health and life, expressed in overcrowding, absence of proper food, and lack of medical attention and comforts on the transports, produced typhus fever and appalling sickness and mortality. This sickness and mortality did not occur when the transports were properly supervised before departure and throughout the voyage by men with training, knowledge and recognized authority.

Vaccination was introduced almost as soon as it was accepted in England.

A permanent hospital was established, and in the absence of regular supplies the medical men sought and found medicinal extracts from the native plants—the wattles, the myrtles, the sarsaparillas.

If there be added to these features the conflict between different departments of government and the gradual establishment of the will of the more enlightened and progressive people in the forms of government, there is presented a picture of medical problems and public health administration which could not be more accurately or vividly compiled on any imaginative basis.

For our knowledge of the condition of the people at this earliest stage of our history we owe most to four medical historians — White, Bowman, McLeod and Cunningham.

The medical man, if he will only use his opportunities, is in the best position to write of people as they are; others can write of people as they would have them to be.

And what is the characteristic of this period? It is a triumphant people facing and defeating all the adversities of their condition and their environment. From the misery of their multiple diseases they freed themselves till Cunningham could say in 1828: "they have there neither endemics nor epidemics", and he could describe them as "an intelligent, spirited, and well-principled population". A clean, healthy, vigorous people in a young, clean country. The "community at large" was, as Phillip had hoped, "happy and comfortable".

The Transition Period.

The next natural period is that from 1830 to 1850. By 1830 the population of New South Wales had increased from the initial community of 1,024 people who arrived in the first fleet in 1788 to about 75,000 persons. In the next twenty years settlement had begun in all the other States and the total population increased to more than 405,000. This latter development was the more important, in that it was a spontaneous growth, except in the case of Tasmania. It was a period of steady pastoral extension with also the beginnings of commercial and industrial activities. It was also a period during which the Australian people were in six isolated communities, each working out its own destiny, with little, if any, communication, other than official, between the groups.

During this period of rapid increase in the population there was also proceeding a transition which altered the character and composition of the population, bringing it gradually nearer to that condition which is usually found in a stable community. At the commencement, in the convict stage, there were many adults but few marriages, and the birth rate was low. By 1830 and thereafter many of these adults had died or were soon to die, the communities everywhere being composed of young, healthy, adult immigrants; a high birth rate naturally followed immediately. These factors made for a balanced population.

During this period influenza was introduced, this being the first, but unfortunately not the last, occasion on which Australia shared in a world-wide prevalence of this disease.

Whooping cough, scarlet fever, measles and smallpox were all introduced from time to time, but again disappeared, the diseases, as well as their victims, dying.

Dysentery was the characteristic disease in each of the settlements on their first establishment.

In this period there was one great blot—the old enemy and reproach, typhus fever. Introduced by the prison ship *Marquis of Hastings* in July, 1839, it spread to the gaols of Hobart, over 1,000 persons being attacked. It is certain that typhoid fever prevailed at the same time, but the relative proportions of these two fevers are now unknown.

The medical historians of this period were Bennett, of New South Wales, Milligan, of Perth, Clutterbuck and Thomas, of Melbourne, Browning and Power, of Hobart, while at this time there first appeared on the Tasmanian stage that picturesque figure, Edward Swarbreck Hall, to whom we owe much of our knowledge of the medical conditions of this period.

This period of twenty years (1830-1850) then was one of comparative peace—a pastoral community enjoying its freedom and its opportunities, facing hardships certainly, but prospering and expanding in spite of them. But there were not yet seen even the beginnings of nationhood—there was no concept of an Australian people.

The Beginnings of National Unity.

The third period in the history of the Australian people was that from 1850 to the end of the nineteenth century. After 1850 the course of events abruptly changed. Whereas, prior to 1850, Australia—five isolated States—had developed slowly as a pastoral and agricultural community, the discovery of gold entirely altered the social and sanitary characteristics of the population. In the nine years between 1850 and 1859 the population of Victoria jumped from less than 100,000 to more than half a million.

Similarly, in Queensland, the discovery of gold between 1880 and 1890 brought a large influx of people, and in Western Australia the discovery of the Coolgardie goldfields in 1893, following the earlier discovery of the Murchison goldfields in the late eighties, increased the population from 36,000 in 1885 to 100,000 ten years later.

In all three States the rush consisted of a migratory population, living under camp conditions, with all the economic, dietetic and sanitary disabilities associated therewith. Consequently the three decades, 1850-1860 in Victoria, 1880-1890 in Queensland, and 1890-1900 in Western Australia, were periods of enteric fever of tragic magnitude and intensity, forever a reproach to Australia. But this fever also flourished, though less actively, throughout the whole of the insanitary first century of our national history. The nineteenth century offered enteric fever every encouragement; the twentieth century saw it pass.

The sudden rises in population numbers in the different States were due in each case to the arrival of young adults, in many cases accompanied by young children. This great gold rush of 1850-1860 produced the same conditions of gross and insanitary overcrowding on ships coming to Australia as had been seen seventy to fifty years before in the transportation of convicts, with the same results, typhus fever, enteric fever and cholera.

One instance only need be quoted to illustrate the conditions. The sailing ship *Ticonderoga*, of 1,089 tons, sailed from Liverpool on August 4, 1852. The number of passengers was 814, made up of 190 males, 222 females, and 402 children. The high proportion of children deserves to be noticed. These children, arriving in great numbers by every ship, were our parents. The vessel arrived in Melbourne on November 4, 1852, and reported that 96 deaths had occurred during the voyage from "the worse form of typhus fever" and that "nearly every soul on board of her, including even her crew, were sick". Eighty-two deaths occurred on the quarantine station after landing. Altogether 168 passengers and ten members of the crew died.

Dr. Hunt, the Victorian Health Officer, expressed himself thus:

> The great mortality seems to have been occasioned by the crowded state of her decks and want of proper ventilation; this caused debility and sickness among her passengers to such an extent that a sufficient number could not be found to keep them clean. Dirt and filth of the most loathsome description accumulated, tainting the atmosphere and affecting every one who came within its influence as with a poison.

By a fortunate opportunity I was able in 1917 to get into touch with probably the last surviving passenger of this ship. He wrote:

> Another passenger, named MacKay, was a prominent figure on board from the fact that he ministered to the spiritual wants of the Scottish highlanders on board by preaching, in Gaelic, every Sunday. He lived many years afterwards as a school-teacher in Kilmore.

This was the Charles MacKay in honour of whose life and memory this lectureship was founded.

Many other ships arrived at that period with a story of "fever" during the voyage amongst the overcrowded gold-seeking immigrants.

The fields on which surface gold could be easily won were soon exhausted, and, while a few of the population remained at work upon organized deep mines, the majority found it necessary to turn their energies to more stable pursuits. Commerce and various forms of productive industries were developed, but principally the development was along pastoral and agricultural lines. During the twenty years 1860 to 1880 these rapidly brought prosperity to the country, and this attracted, during the decade 1880 to 1890, a fresh current of new population—a new accession of young adults. This period, however, concluded in world-wide speculation, which in Australia took the form of speculation in land values, and the effect of the financial collapse which followed this boom is shown by the small increment of population by migration from 1891 to 1907. In 1907 the stream of migration again turned in favour of Australia, and during the five years 1909 to 1913 the net immigration was considerable.

There were thus three periods of immigration: the fifties, the eighties and around 1910. The three periods of young adultness of population were naturally followed by increases in the birth rate, and so each was followed by a period of great excess in the numbers of children under ten years of age over the normal proportion of an established community.

The natural result followed: the diseases of young adults—tuberculosis, pneumonia and enteric fever—had their three periods of great prevalence, while the infectious diseases of childhood—diphtheria, scarlet fever, measles and whooping cough—became in their turn tragically destructive as the great mass of unprotected children became at each period available.

While the age-constitution of the population played so important a part in this period in determining the behaviour of disease, other factors were at work. First among these was importation. The two most obvious examples were smallpox and

influenza. Smallpox has become epidemic in Australia on several occasions. Each time the method and time of introduction have been determined with certainty or with reasonable probability. Influenza has on each occasion of its prevalence in Australia been absolutely related in time to world prevalence.

Cholera, very curiously, has never invaded Australia, though brought here many times by ship.

The Chinese, who immigrated in large numbers between 1850 and 1880, almost certainly introduced leprosy, hookworm (and perhaps filaria) into Australia. The Kanakas (perhaps also the Chinese) probably introduced filariasis into Australia.

Thus very briefly have been indicated the great influences, beyond the control of the people themselves, which determined the physical destinies of the inhabitants of this country—importation of disease, the great fluctuations in the age-constitution of the community due to the great variations in economic conditions, and the insanitary conditions almost inevitable in the disorder associated with the early years of rapid development.

There were other factors equally important which were controlled by the people themselves.

Until 1850 Australia had consisted of small coastal centres of population with a grudgingly conceded half measure of local self-government. After 1850 the swarm of new arrivals came here with quite different ideas. The great movement in England towards political emancipation which had culminated in the *Reform Bill* of 1834, had swept on to great developments in local self-government and parliamentary representation, had produced social reforms in all phases of social life, and had produced, among other things, the first *Public Health Act* in 1848.

It was not to be supposed that these young people, coming fresh from this ferment of political freedom, enterprising enough to break with all their established associations and face life in a new country, would tolerate for long a system of government which meant reference through a far-away autocratic city to a still further away government in London. Soon the spirit of independent representative self-government found expression and its goal; and at this, its first stage in growth to national unity, this young people endowed itself with three great gifts—freedom of speech, freedom of conscience, and the great good sense not to abuse either.

The community first adopted English laws and English forms of social organization, but found them unsatisfactory. They had full independence, they had the power, but did not know how best to use it. Having no knowledge, in those days when education was not general, they could not know. They tried for twenty years or more on the English model without, as the contemporary reports well show, any notable success. The position was such that it moved the Honourable Alan Campbell to say to the First Australian Medical Congress:

> It is always, at least it ought always to be, a consideration with legislators how far the laws they wish to frame will meet with an intelligent response in those to whom the State proposes to entrust its powers. As a matter of fact, the amplest powers may be vested in a local authority, but unless there is a rational congruity between the function demanded by law and the intelligence that is to exercise the powers under it, a hiatus will arise and the law will be found to be practically a dead letter.

But then came general education. Between 1870 and 1885 the education acts of the various States all imposed compulsory secular general education on all children. From that time the standard of general education has been high, higher perhaps, speaking of the whole community, than that of any other country in the world.

It is certain that the spread of general knowledge since that time has been very rapid and the knowledge has been soundly acquired. Not the least amongst the educational influences has been the daily Press; the people of Australia have been universally reached by a sound, deliberate newspaper education for a longer period than that of any other country.

Such a high standard of general education and of newspaper guidance has removed all difficulties from the path of those whose duty it is to guide the people in the principles of a healthy individual life and a healthy social system.

Proceeding simultaneously with this general education was the development of a sound system of medical education. Medical schools were instituted in the three States where they now exist at the same period. The medical profession and the whole nation cannot be sufficiently grateful to the men who from the outset of these medical schools laid down the highest standards of medical education.

It is not too much to say that as a result of the labours of the men of the early periods of the Australian medical schools the people of Australia today enjoy a standard of medical service throughout the whole community better than that enjoyed in any other country. I speak of the average standard of professional ability and devotion available to every citizen of this continent, rich or poor, in the cities or the remotest interior; no country has a higher standard.

These claims for superiority are a little arrogant; they are deliberately so, for it is time that the results of the marvellous work of the last generation should be fully recognized, and it is time that we as a people should show a just pride in that one thing alone of which we may be proud—a high standard of efficiency and of human service.

While speaking of human service, let us never forget the work of the country doctor. With only horses and indifferent roads, facing fires or floods, meeting every crisis with candles or kerosene lights, he may have sometimes failed to save his patient, but has never failed in his devotion and self-sacrifice.

About this same period two other important changes occurred: the quicker passage to Australia

by steamers through the Suez Canal and the connexion of Australia to Europe by cable through Port Darwin and Java. These events happened in 1872, and thereafter Australia was in regular and immediate contact with Europe and Asia.

Thus the decade 1870 to 1880 was a most important period in the history of Australia as a nation. Steamers travelled by a quick route to one Australian port after another, linking the people together, replacing slow sailing ships bound for one Australian port only. The States were connected with each other and with the rest of the world by telegraph, and education became general, enabling all to take advantage of these new facilities. One other fact should be mentioned: the principles of the great *Public Health Act* of England of 1875 were adopted by all the States, but this was the last time Australia looked to England for a lead in public health legislation.

The eighth decade of the nineteenth century was the pivotal period in Australian history. It is a most interesting historical fact that it was in precisely this decade that there was a strong movement amongst the political leaders in England towards forcing Australia into independence by compelling the Australian colonies to separate from England. The situation recalls to mind that curious phrase: "Wisdom lies in masterful administration of the unforeseen."

At this stage I wish to emphasize our own relation to this history. The great surge of population in the fifties, which made this continent alive, brought the children to Australia who were our own fathers and mothers. The great welding of the pieces into one nation, which began with the eighties, commenced when we were children. Two generations have made the Australian people.

Let me remind you that Dr. William Bland was born in London in 1789 and died in Sydney in 1868, having practised there since 1814; that Alexander Berry was born in Scotland in 1781 and died in Sydney in 1873, having been an active member of our profession since 1808; that Crowther, born in 1817, died in Hobart in 1885 after long practice of his profession in that city.

This new community of interest awakened a sense of nationhood and the movement towards federation began, finding complete expression and realization at the commencement of the new century; and with this secular epoch a new story or a new chapter of the story begins.

The New Century.

The first year of the new century introduced Australia to a new disease enemy—bubonic plague. Every State, except Tasmania and South Australia, was invaded by a disease whose origins were at that time mysterious. As has been well enough said, "panic is the parent of sanitation", and so it proved then. A great new stimulus was given to preventive medicine, the influence of which has never ceased. Instead of experts coming from England to apply English measures to Australian conditions, a new school of young Australian-born enthusiasts arose—Armstrong, Tidswell, Norris, Sinclair, Ham, Elkington, Blackburn—who laid the foundations of an Australian system of preventive medicine, foundations on which a very admirable structure is being built.

Perhaps the most notable feature of the new century, so far as the health of the people was concerned, was the continuous improvement in industrial conditions and the rise in the level of wages. Probably no single factor makes more surely for a high level of individual health, and therefore of the general health of the community, than a high level of wages or a high value for the purchasing power of the wages received.

Our Australian people have figures of mortality in all directions which are far better than those in any other country, except New Zealand, and this condition is due to the four factors indicated—a high standard of economic life, a high standard of general education, a high standard of medical practice, and a high standard of public health administration.

I have attempted to outline very briefly the history of our people against, as it were, a medical background. This background, in this lecture on medical history, is one of disease and suffering. But this is not out of place, for, just as disease in a person means disturbance in the harmony of growth and function, so do epidemic diseases very surely indicate, and are the best indicators of, disharmony in the social body.

There is much that might be said of the great part played by our medical brothers. Medical men have played a great part in national service apart from their profession, from Bass with his explorations, through Bland with his very early aviation models, and Berry, who first opened for settlement the extensive district around Jervis Bay, to those of our own time who are rendering valuable and appreciated public service. No stimulus is ever necessary to spur those men who have this urge for service, nor can such inspiration be supplied to those who have it not.

But in the science of our own profession there are many who have been prominent in advancing knowledge. Davies Thomas, of Adelaide, first opened the way to knowledge of hydatid disease. Bancroft pioneered not only knowledge of filaria, but many other scientific questions. Tidswell laid on a sure foundation the previously speculative knowledge of the rôle played by rats in bubonic plague. Hunter, before his early death, had done brilliant research work on the physiology of the nervous system.

The search for new medical knowledge is now almost the only branch of science which is not organized on a national basis, and it is now time that this important phase of national life received attention.

Of all the biographical notes which I have read of our Australian medical men who have achieved fame, I like best this simple description of Bass:

His own doings and writings show him alert, resourceful, courageous, impatient of inactivity, and at the same time modest and unassuming beyond the normal—a man, that is, who wanted to get things done and rightly done, and was not much troubled about getting the credit for having done them.

And by that road we come again to Charles MacKay. Stepping on the stage of his time, among the filth and social disorder created by selfish commercial greed, he kept flying the flag of high ideals and devoted himself to education. Could we find one who would more aptly represent the prime facts in our history? Could we create a nobler figure round which to gather for the study of history?

The story of the development of the Australian people is the story of a great-hearted people with hearts discouraged by disease and encouraged by education. Such, in himself, was MacKay.

MEDICAL MEN AS PASTORAL PIONEERS.[1]

By E. Alan Mackay, M.B., B.S. (Melbourne),
Melbourne.

During the first half of the nineteenth century, that is to say, before the rumours of the rich alluvial gold mines had brought a flood of immigrants of all classes to Australia, medical men far outnumbered members of the other learned professions in these colonies. The reason is not far to seek. Every ship which brought colonists brought also a doctor. Enterprising and adventurous young men were only too glad to take ship for the new country, but were disappointed on arrival to find little opportunity for medical practice and were obliged to look round for some other means of making a livelihood.

On reading the names listed below one is struck by the preponderance of Scottish names. The Universities of Edinburgh, Glasgow and Aberdeen were turning out graduates in excess of the home demand. Mr. John Buchan has said that it is the fate of the Scot to be always in exile. It will not be denied that the national propensity to live in other countries has been an important factor in the extension of the British Empire. Certain it is that many of the young surgeons who came thus early to Australia had been born and bred on the farms and sheepwalks north of the Tweed. They had worked with their hands as well as their heads; they already had some practical knowledge of stock-breeding; they possessed youth, education and the spirit of adventure, and here they found a land of promise. Men better equipped to take advantage of the opportunity would be hard to find.

The approaching centenary of Melbourne focuses attention on the pastoral occupation of the area which was known as the Port Phillip district before it became the separate colony of Victoria. Messrs. Billis and Kenyon, in their book, "Pastures New", give an exceedingly interesting account of that period, and in the companion volume, "Pastoral Pioneers of Port Phillip", will be found the names of all those who held pasturage leases there before 1851.

Among them were more than forty medical men. Placing them alphabetically, they were: Alexander Anderson, Alexander Arbuckle, James Bailey, Edward and William Barker, William Dallas Bernard, Barry Cotter, Daniel Curdie, James Dickson, Dugald Fletcher, Augustus and George Greeves, John Sealy Griffin, Edmund Hobson, Robert Culbertson Hope, Godfrey Howitt, —. Kilgour, Alexander and George Imlay, William Kerr Jamieson, Thomas Lang, John Livingstone Learmonth, Peter McArthur, Farquhar McCrae, George Edward Mackay, Robert Martin, Francis Murphy, James Frederick Palmer, David Patrick, William Pike, George Playne, Robert Officer, David Reid, William Ronald, —. Stewart, D. E. Stoddart, Alexander Thomson, William Thomson, Adam Turnbull, David Elliot Wilkie, and John Henry Wilsone.

Some of these, while conducting their medical practices, took up pastoral leases as investments, with overseers or managers in charge; but others were pioneers in a fuller sense, taking up virgin country and devoting their energies to developing the land and building up the districts around them. As the settlements grew into little communities and as the various social movements took shape, it was natural that the doctor should become the magistrate, the president of the agricultural society, of the race club, of the school council *et cetera*. In such ways the medical profession exercised a wide influence. It is hardly necessary to stress the advantage to other pioneers of having a doctor within a day's journey. It certainly added to the peace of mind of those who had taken their wives and families to the outlying stations.

A lady who died some years ago has left an account of a journey made in 1838, when she, at the age of eight, came with her parents, Mr. and Mrs. Docker, from the Hawkesbury to the Ovens River. The journey took nearly six months, as a halt of several weeks was made at the Billabong Creek during the lambing of the flock which they were bringing with them. Provisions ran short and the menu for some time was only damper and mutton. The narrator stated that it had not seemed a great hardship at the time, owing to the novelty of the experience, but her mother suffered in health from the privations. She added: "There was no doctor practising in the district, but Dr. Mackay, who, with Mr. Faithfull, was our only neighbour, kindly came and prescribed for her." The district referred to may be said to have been bounded at that time by Yass on the north, Melbourne on the south, and east and west by the ends of the rainbow. A year or two later Dr. Curdie was making his hundred-mile journeys to give free service in cases of accident and emergency in the western part of the new district.

Instances could be multiplied to show the value of medical training in the pioneers, but apart from

[1] Read at a meeting of the Historical Section of the Victorian Branch of the British Medical Association on March 15, 1934.

their special skill their general influence was a great asset, because they were men trained for positions of responsibility, and they brought with them certain ethical and social ideals which set a standard of conduct in a scattered community where public opinion was as yet nebulous. Among the names will be noticed many whose descendants, both in pastoral and professional circles, are maintaining the tradition of those who gave valuable service in the foundation of our legislative, municipal and social affairs. One does not wish to suggest that there were not a great many others of a similar class among the pioneers, for Port Phillip was singularly fortunate in attracting at the outset many of the splendid type which Kipling has termed the gentlemen adventurers.

Hard upon the occupation of Portland by the Duttons and the Hentys, and that of the banks of the Yarra by Batman and Faulkner and others from Van Diemen's Land, came the overlanders with their flocks and herds from the north, and among them were many of the doctors whose names have been mentioned.

There were two very early medical pastoralists who, because of information obtained from their friend and relative, Hume, the explorer, had much to do with opening up the Ovens River district in 1838, some of their sons and daughters being among the first settlers there. They were John Dight, of Richmond, on the Hawkesbury, and David Reid, of Bungonia, near Goulburn. The former, a young London doctor, in the year 1800 decided, for reasons of health, to take a long sea voyage. Accompanied by his wife and infant daughter, he set out as surgeon to the emigrant ship *Cornwallis*. Coming by Rio de Janeiro and rounding Cape Horn, they reached Sydney in January, 1801.

On reaching Sydney he found that his medical services were at a discount, but his health was restored and he found the climate favourable, so he took a position in the Commissariat Department at headquarters and remained there for four years. He then applied for a grant of land and started farming near Richmond, on the Hawkesbury River, where he made his permanent home and brought up a large family, all of whom in after years bore a share in pioneering work. He was appointed coroner for the district in 1828 and held the position till his death in 1837. His eldest daughter became the wife of Hamilton Hume, and this had a direct bearing on the settlement of the Ovens River, as will presently appear.

Despite droughts and floods and other setbacks, the farm on the Hawkesbury flourished and stock increased, so that more land was needed. All land in the colony was at that time held by the Crown in England and the officials were jealous of any encroachment. Land could neither be bought nor leased on satisfactory terms. The small areas granted were intended only to encourage agriculture. The Government opposed pastoral settlement because of the difficulty and expense of policing what were known as the waste lands. Dight, in writing to a friend in England during Governor Macquarie's *régime*, complained that his request for a larger area had been refused, though land had just been granted to a ticket-of-leave man. The favour being shown by Macquarie at this time to certain of the convict class was causing great ill-feeling in the colony, a matter which is trenchantly dealt with by G. W. Rusden in his "History of Australia". In the same letter Dight stated that he was sending his eldest son into a foundry, as he thought he would thus get the most valuable training for life in a new country. This and the practical experience he gained at his father's flour mill at Campbelltown stood the young man in good stead when a few years later he went with his brother to Port Phillip and built the first mill on the Yarra. An address presented to Governor Bligh in 1807 by a number of land-owners, John Dight being one of the signatories, refers to the "dreadful crisis" in which the Governor had found the colony, and states that they had subscribed all the grain they could possibly spare for the public store at a fixed price, "rejecting any greater price which they would have received in the market". Price-fixing and pools thus appear to have been under discussion at an early stage of Australian economics.

As the flocks and herds multiplied it became necessary to find grazing areas further afield, and in defiance of the law and without lease or title the farmers began to occupy the waste lands, and to such men the term squatter was applied with an intentionally derogatory significance. John Dight was, with his growing sons, among the pioneers of the Hunter, the Namoi and the Clarence Rivers in the north; and some of his sons and daughters were afterwards among the early overlanders to Port Phillip. The presence of men of education and standing among the graziers, no less than the growing recognition of the importance of the wool industry, soon brought about a change of values, and the word squatter acquired a definite prestige.

Some fifteen years after John Dight's arrival in Sydney there came David Reid, R.N., M.D., of Aberdeen. He had served as surgeon on His Majesty's Ship *Bellerophon* at the Battle of Trafalgar and was on the half-pay list, living quietly in England, when he was recalled for service of a different nature. It happened that in 1813 the mortality rate on ships bringing convicts to Australia had reached the appalling figure of 40%. A strongly worded dispatch from Governor Macquarie convinced the Lords of the Admiralty that a change of system was imperative. Up to that time it was customary for the Transport Board to contract with private ship-owners to convey the immigrants at so much per head, the ship-owners engaging their own captains and surgeons. The captains naturally incurred no expense which they could avoid, and the doctors were given no authority. Ships of seven or eight hundred tons burden were carrying three hundred and fifty to four hundred passengers, calling at perhaps one or two ports on voyages lasting from four to six months. The Admiralty now instructed Sir William

Knighton, Physician to His Majesty's Fleet, to select from the naval surgeons on half-pay the best man, in his opinion, to reorganize the system. His choice fell on Lieutenant David Reid. It was now decided that captains and surgeons should be appointed by the Admiralty and that the doctor be empowered to order the captain to put into the nearest port whenever he considered it necessary to get fresh food and water, and he was given other privileges as regards hygienic control.

The first ship to sail under the new *régime* was the *Baring*, with Lieutenant Reid as surgeon and Ensign Cox in command. Sydney was reached in 1815, after a voyage of over six months, with a mortality of only 4%. This was regarded as most remarkable. Subsequent voyages were made with equal success, and Dr. Reid received a letter of commendation under the sign manual of King George III, advising his advancement in the colony. He was presented with 2,000 acres of land at Bungonia, near Goulburn, and was appointed magistrate for the district. He then went home and brought his wife and young children to Australia in 1823 in a small vessel, *The Mariner*, with an assortment of seeds, plants and equipment for his new home, which he named Inverary Park, after his birthplace in Scotland.

There is a special reason why his name should be remembered by all who appreciate the value to this country of the merino sheep. The letter which he received from His Majesty was by no means an empty compliment, for he was granted the extraordinary privilege of importing sheep from the famous Royal flock. For one of the rams he was offered two hundred pounds by Captain John Macarthur, but would not part with it. He had the instincts of a flock-master, and it is not surprising that his sons in after years became prominent in pastoral affairs.

Dr. Reid had married Miss Agnes Dyce, a woman of education, character and capacity not inferior to his own. She readily adapted herself to the new conditions, and their family had the advantage of a home life very different from what might have been expected in a wild bush land. Mrs. Dight, formerly Hannah Hilton, also was a woman of personality and distinction, and insured for her family all the educational and social advantages at that time available. An immeasurable debt is owing to women such as these, who reared and trained the first Australian-born generation in the principles which it has become a fashion to call early Victorian. The term seems to gain new honour in its application to the wives and mothers of so many of our pioneers.

It has passed into a proverb that sailors are handy men, and the naval surgeon translated to the bush had plenty of opportunity to prove the truth of the saying while converting his property into a productive estate. Clearing, building, sowing and reaping, milling, distilling (for a daily tot of grog was a recognized perquisite of the men), tanning, harness making, and the care of cattle, sheep and horses were among the daily tasks. The place was like a small village, there being as many as forty assigned servants sometimes employed. Some of these were skilled tradesmen, and many of them became good citizens. For others very strict discipline was necessary. Reid's eldest son, who died in 1906, at the age of eighty-six, has left an account of some events which impressed him in his childhood from 1828 onwards. Among them was making friends with Captain Sturt on his return from exploring the Murrumbidgee. Captain Sturt stayed with Dr. Reid to have treatment for sandy blight, a common trouble among the bushmen. Another frequent visitor was Admiral Gore, who claimed to have been, as second lieutenant to Captain Cook, the first white man to set foot in New South Wales.

A travelling magistrate with three mounted police and a scourger came once a month, and a court was held in the station schoolroom. Twenty-five, fifty or a hundred lashes might be ordered. If no triangle was available, the man was tied to the nearest tree to receive punishment, which was sometimes inflicted for quite trivial offences. One day, when a former army surgeon was on a visit to Dr. Reid, an assigned man was brought in with a bullet wound, and the two branches of the service made quite a ceremony of the extraction. When the patient recovered he was sent to Sydney to be tried, and only escaped hanging because evidence was forthcoming that he had at the risk of his life prevented the abuse of some women by members of his own gang. Young Reid remembered seeing the bodies of two men hanging on a gibbet where there is now a street of the city of Goulburn. The place was long known as Gallows Hill. The bodies were left swinging there for about three years. Governor Bourke, who visited the district in 1832, then ordered their burial, but the gallows tree remained for several years. Such incidents made a deep impression on the lad, who in later life became an ardent advocate of democratic principles. But apart from the severity which was inseparable from the system, the home life at Inverary was one of culture and refinement, as was the case on other stations where the people were of a like class, and despite distances and primitive roads, there was a pleasant interchange of hospitality and courtesy between the early settlers' families. It was because of their friendship with the Humes that several of them became interested in the district south of the Hume River before there was any direct move to occupy it. Before setting out on his expedition with Captain Hovell in 1824, Mr. Hume visited his friend, Dr. Reid, and was given instruction in the use of splints and tourniquets, how to scarify for snake-bite *et cètera*. On his return from that journey Reid and Dight (Hume's father-in-law) were the first to hear of the fine pastoral country in the south. In this connexion it may be noted that Mr. G. Faithfull, in "Letters from Victorian Pioneers", states that he went to Oxley Plains, on the Ovens, in 1838 because of what Mr. Hume had told him. Though there were a number of squatters desirous of coming south, the official attitude was one of steady opposition to further extension, and twelve

years had to pass after Hume and Hovell's return before there were any stations south of the Murrumbidgee. But after Major Mitchell's return from Portland in 1836, with his glowing account of the land to which he gave the name of Australia Felix, the official opposition was overborne and soon the tide of migration to the south was in full flood. Some of the Dights and Reids and two young friends of theirs, Dr. Mackay and Dr. Murphy, who

Sir Francis Murphy, K.B., M.R.C.S. (England). Born at Cork, 1809. Died at Melbourne, 1890. Was the first Speaker of the Legislative Assembly, Victoria.

had been gaining a little bush experience, decided to join the overlanders. Of Dight's sons, two, besides having station experience, had also had some practical training in mechanics. These young men set out for Port Phillip and, finding a suitable place, presently established a flour mill, worked by water power, at Dight's Falls. Part of the paddocks which surrounded the millhouse is now Victoria Park, Collingwood. Charles Dight served in the first Legislative Council, but died early. His brother John went back to the station, Bungowannah, close to the present Hume Weir, of which he had secured the lease on his first overland journey. His name was closely associated with the Albury district for more than half a century.

Dr. Reid's son David, at the age of eighteen, was already a practised bushman. A conversation with Mr. John Gardiner, who had just returned from taking the first overland expedition with cattle to Melbourne, resulted in his persuading his father to let him take men, horses and cattle to look for a new run in the country of which Mr. Hume had previously advised them. He reached the Ovens Crossing (now Wangaratta) in the spring of 1838 and took up in his father's name the station Cararagarmungee, on the north bank of the river. To the west was Bontherambo, taken up at the same time by Mr. Joseph Docker; while on the eastern side was Tarrawingee, already occupied by Mr. Bowman, from whom Bowman's Forest takes its name. Tarrawingee was bought a few years later by Dr. Murphy, who resold it to Dr. Mackay in 1852, as he then decided to live in Melbourne, having been elected to the Legislative Council. The two last named, soon after arriving in New South Wales, had become friends with the Dights, the Reids and the Humes; and Dr. Murphy afterwards married the elder daughter of Dr. David Reid, and Dr. Mackay married the youngest daughter of Dr. John Dight, a sister of his neighbour, Mrs. Hamilton Hume. These details are mentioned in order to show how this group came to be so closely associated in opening up a particular district. Francis Murphy was born in 1808 in Cork, educated at Trinity College, Dublin, and qualified as Member of the Royal College of Surgeons of England. He took ship for Sydney in 1836. He did not find an opportunity for practice, but took up land for grazing near Goulburn. George Edward Mackay was born in 1811 in Caithness, in the far north of Scotland, and was educated in Edinburgh, where he took his M.D. degree just a hundred years ago. He came to Sydney as surgeon to the *Lochiel*, a ship of 292 tons, arriving in May, 1835. He settled at Yass, near Mr. Hamilton Hume's station, and while doing such medical practice as the scattered population provided, leased some land and started a sheep and

George Edward Mackay, M.D., Edinburgh. Born in Caithness, 1811. Died at Tarrawingee, Victoria, 1867.

cattle station. His name soon appeared on the list of magistrates. It would be interesting to have records of those first years of colonial experience, but none are available. It is a matter for regret that so few of the early settlers kept diaries or left written records made at the time. Certain diaries which are extant have therefore a heightened value.

That of Mr. A. F. Mollison, which, through the courtesy of his nephew, Dr. Crawford Mollison, is now in the Melbourne Public Library, is of special interest, as he was one of the very first to travel with his stock to take up new country in Port Phillip. The following historical item is taken from his diary:

> June 22, 1837. Mr. Hamilton Hume, accompanied by Mr. George Barber and Dr. Mackie [*sic*], of Yass, came to the river this morning; close to us stands a tree on which Mr. Hume cut HUME RIVER thirteen years ago, when, with Captain Hovell, he travelled to Port Phillip or Western Port. He had planted clover and peach stones around the tree, but could find no appearance of their having grown.

It throws light on the methods of the explorer. Barbour and Mackay (to give the correct spelling) early in the next year took up respectively the runs of Barnawartha and Myrrhee.

In the volume of letters collected by Governor Latrobe in 1853, and published many years after under the title, "Letters from Victorian Pioneers", is one from G. E. Mackay, in which he states:

> I arrived at the Ovens in March, 1838, on the evening of the day on which Mr. Faithfull's party was attacked by blacks. There were two temporary encampments previous to my arrival, *viz.*, Mr. W. Bowman's and Col. White's. In a few days Mr. G. Faithfull selected the land he now holds—Oxley Plains—and I occupied the land immediately opposite—Myrrhee. A panic seized the servants and they deserted their employers. Bowman, Faithfull and White abandoned the cattle on their runs, and I was left alone with three assigned servants, my free men having absconded. . . . I took my stock back to the Hume River. On my return to the Ovens in about six months' time . . . I settled at Warrouley. Faithfull had returned to Oxley Plains, Bowman was here (Tarrawingee) and Docker at Bontherambo. . . . Reid occupied Cararagarmungee. . . . I may mention as a specimen of the fatigue undergone by the earlier squatters, that for six days and nights before I left the Ovens I never lay down, being engaged all day in herding the cattle and all night in walking round them. I was alone, one of the men being similarly employed with my sheep, and the other two in removing and guarding the stores. The blacks were not numerous, but very hostile. They murdered a number of white men and destroyed a great many cattle and horses.

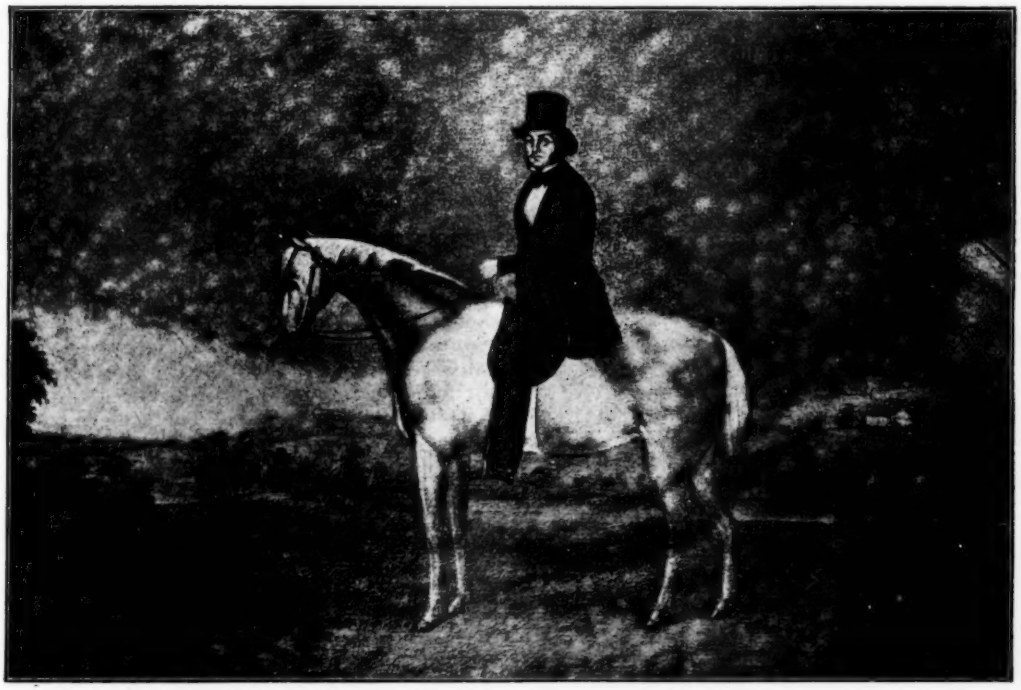
He then tells that in 1840 the blacks, over twenty in number, attacked his station in his absence, murdered one of his men, killed four of his horses and many of his cattle, dispersing the rest so that many were never found, and burning his stores of flour and provisions. Flour was then £100 a ton in Melbourne, and tea £40 a chest. He goes on to say:

> My demand for compensation was treated with contempt by the Governor of N.S. Wales; he said I had voluntarily placed myself beyond the boundaries of police and must take the consequences, although I was then paying an assessment upon stock for the very purpose of securing police protection.

The fatigue and exposure incidental to Mackay's attempt to secure Myrrhee led to a severe illness, a cardiac affection, which in the following years of strenuous work hampered him and led to his death at the comparatively early age of fifty-six. In the meantime he had done a great deal in the development of Whorouly (as it is now spelt), of Tarrawingee and other station properties in Riverina as well as in Victoria. Like his neighbours, the Murphys, the Reids and the Dockers, he had a taste for tree-planting and gardening. As they had come with the intention of being permanent settlers, they began by making plantations, orchards, vineyards and gardens, and building comfortable and substantial homes. Then, when farmers and selectors began to come, each station was a depôt for the generous distribution of seeds and plants, with the result that in a few years the valley of the Ovens became noted for its attractive dwellings. This had an appreciable effect on the spirit of the district, adding to the comfort and contentment of the settlers' wives through many arduous years. These station-owners were good judges of stock, and they maintained a high standard by purchasing and importing the best sires and dams obtainable for stud purposes in various classes.

Referring now to young David Reid, he arrived at the Ovens Crossing (Wangaratta) in September, 1838, and took up the run Cararagarmungee, a tract of river frontage and hill country which, fourteen years afterwards, was found to include some of the richest alluvial goldfields of Australia. But before the arrival of that picturesque era the squatters had many difficulties to face. A letter written by the widow of Dr. Reid in 1848 relates that her sons are thinking of going to the Californian gold diggings, so hard are they finding it to make a living in Australia. Within five years she is telling her correspondent that the young men have become licensed gold buyers and are making a handsome profit buying the gold from the miners on their own station and selling it in Melbourne. She also mentions the sale, at a price running into five figures, of a portion of a block of land in the city of Melbourne which she had bought from Mr. John Gardiner in 1838 for a draft of cattle at Goulburn. Many incidents of the gold diggings and bush-ranging days could be told if space permitted. It may be recalled that it was from the Woolshed Creek on Reid's run that the gold was won with which the horse was shod for the Mayor of Beechworth to ride through the town on an occasion which has become historic. At that time there were over thirty thousand people on the Ovens diggings and the squatters were looking elsewhere for undisturbed grazing areas. It was a dramatic change from 1840, when young Reid was reaping the first field of wheat grown on the banks of the Ovens and found that he and his men were surrounded by a number of blacks in warpaint and armed with native weapons. By good luck two men from the hut some distance away had seen the blacks creeping through the reed bed on the river bank and ran up with their guns and dispersed the aborigines. It was the same tribe that made the attack at Whorouly. Seventeen of them were subsequently lodged in gaol, but were released and leniently treated. Some of the settlers at that time were giving the blacks no quarter, and Mackay, who had had a long and dangerous experience in effecting the capture of the men who had done him so much injury, expressed a scathing opinion of the justice of the matter. But there was nothing vin-

dictive in his nature. As soon as he had established a measure of safety on his run, he treated the blacks with kindness. G. W. Rusden, who in his "History of Australia" is outspoken in criticism of the brutality of some of the whites in their treatment of the aborigines, gives special praise to Dr. Mackay and his neighbour, Mr. Joseph Docker, for their consideration towards the natives. There was very little danger from the black men after 1842, but it was long before the murder of eight of Faithfull's men at the Broken River, now Benalla, was forgotten. While young Reid was taking up the station on the Ovens, his father was seized with an illness which after many months proved fatal. The widow then came with her other sons to Cararagar-



Alexander Thomson, M.D., Aberdeen. Born at Aberdeen, 1800. Died at Geelong, 1866.

mungie, and Reidsdale, as they called the new home, was their headquarters until the seventies. Dr. Murphy and his wife soon followed them and bought from Mr. Bowman the adjoining run, Tarrawingee, in 1848 and built the first brick house there. It is still part of the homestead now called The Grange. When Bowman first came, he built a hut and cattle-yard at a very beautiful bend of the Ovens River, where the stream was easily fordable. The first flood swept over the site and a new hut was built on higher ground. For many years the ford sufficed for summer traffic, but was useless in the winter and spring. When at length a bridge was built, it was within a stone's throw of the corner posts of Bowman's first hut, and Dr. Mackay gave it the name of The Pioneer Bridge, by which it is still known.

In some of the rooms at The Grange may be seen the attachments to the windows whereby solid shutters were fixed at nightfall to prevent the blacks spearing those who sat within the lighted rooms. Francis Murphy, though energetic in his pioneering, was not really interested in sheep and cattle. His inclination and ability directed him to public life, and when the first Legislative Council of Victoria was constituted he was returned as one of the squatter members. Of that council another doctor, James Frederick Palmer, was appointed Speaker and was the first of the medical profession in Victoria to be knighted. The bi-cameral system was introduced in 1856. Dr. Murphy then stood for the Legislative Assembly, was appointed its first Speaker, and in 1860 he was made a knight bachelor. He filled the position of Speaker with dignity and ability for fourteen years and also held other important positions. He lived to the age of eighty-one years.

Enough has been said of the strength of the medical influence in the north-east of Victoria. It was equally marked in other directions, particularly in that rich country lying between Geelong and Portland. The name of Alexander Thomson, M.D., Aberdeen, is associated with Geelong, which he first took up as a sheep run. Riding, it is said, on the old grey horse and wearing his customary stove-pipe hat, he went round the western shore of Hobson's Bay, past the Werribee, till he came to the place where the city of Geelong now stands. Dr. George Howard told, at a former meeting of

this Society, something of Dr. Thomson's activities. Much more might be said, for he had had several years of varied experience in Hobart before coming to Port Phillip, and on this side of the straits he took a leading part in parliamentary and municipal affairs.

Another name identified with the western district of Victoria is that of the Hope brothers. Robert Culbertson Hope, M.D., Edinburgh, was born at Kelso, Scotland, in 1812. Arriving at Sydney in the ship *Lady Kennaway*, he began practice at Narellan, near Cobbity. He married Miss Hassall, a granddaughter of the Reverend Samuel Marsden, that famous early importer of merino sheep. Arriving at Geelong in 1847, he became a prominent woolgrower and afterwards an enthusiastic vigneron at Batesford. He was a member of the Legislative Council of Victoria.

Robert Culbertson Hope, M.D., Edinburgh. Born at Morebattle, near Kelso, 1812. Died at Batesford, Victoria, 1878.

Dr. John Livingstone Learmonth was one of several brothers who were in the forefront of merino breeders. The Learmonths and the late Mr. J. L. Currie were in keen and friendly rivalry at the sheep sales and shows over a long stretch of years, but in the eighties the brothers withdrew and went to live in England.

A doctor who remained in the country of his adoption and become one of the best known of Victorian western district squatters was Daniel Curdie, M.A., M.D., Glasgow. He came to Sydney in 1839 and after practising a short time at Bathurst joined the overlanders. He camped for a time with his cattle on Toorak hill and then went and took up Tandarook run near Camperdown and held it till his death in 1883, at the age of ninety-three. He was a friend of the scientist Sir Joseph Hooker, to whom he sent many specimens of Australian fauna and flora at that time new to science. Curdie's Creek and Inlet were named after him.

Dr. D. E. Stoddart was another of the well known western district sheep-breeders.

There were three brothers, Dr. Alexander, Dr. George and Mr. Peter Imlay, once very prominent in pastoral and commercial affairs, whose names are now almost forgotten. Alexander arrived in Sydney in 1829 and was gazetted to the medical staff. In 1832 he accompanied Sir Richard Bourke on his official visit to Goulburn and, going on to the Monaro Plains, decided to take up a station. He then became interested in Twofold Bay. His brothers meanwhile had business interests in Van Diemen's Land and had a small fleet of vessels trading chiefly in conveying cattle and sheep. They now added whaling to their business. When settlement began at Port Phillip they were in a position to send large numbers of sheep and cattle, and they secured large areas as far apart as Warrnambool to the west and Sale to the east, totalling some 200,000 acres, which carried 35,000 sheep and large herds of cattle. Alex. Imlay made a voyage to the infant settlement at Adelaide, and while there founded a newspaper and made an expedition to the lower Murray River and indicated where the road should be made. Such widespread interests in a country of primitive postal facilities led to difficulties and disagreements. The brothers dissolved partnership, fortune proved fickle, and the end of the story was a sad one. There do not appear to be any representatives of the family in Australia now, though in their day the Imlays did remarkable colonizing work.

A name that has held through several generations a special place in pastoral affairs is Officer. Sir Robert Officer was one of Tasmania's early doctors. He entered the House of Assembly when that colony got its constitution and he was appointed Speaker of the House in 1861. He received the honour of knighthood. He and his four sons came to the western district of Victoria and acquired large holdings there and in Riverina. It was on one of these that ostrich farming was first undertaken in Australia.

Another of the Hobart doctors who brought his sons to Port Phillip was the Reverend Adam Turnbull. Born in 1803 at Auccleugh Place, Edinburgh, he took the M.D. degree before he was twenty-one. He married and brought his bride to Hobart in 1825. After three years of farming he began practice in Hobart, but soon became Secretary to the Governor, Sir Eardley Wilmot and Sir John Franklin. He was appointed to the Legislative Council and held several offices under the Crown. He resigned from the Council as a protest against the continuation of transportation. He then entered the ministry of the Presbyterian Church and spent the remainder of his life in the midlands of Tasmania in that service. He had property there, and when many of his friends were taking up

grazing country on the mainland he followed their example and acquired a run at Mount Koroit and property at Winninburn, near Coleraine, for his sons.

Such names as Wilkie, Lang, McCrae and Howitt indicate the artistic and literary associations of some of Melbourne's early doctors. Farquhar McCrae, M.D., Edinburgh, of the Inniskilling Dragoons, who arrived in Melbourne in 1841, was a member of a distinguished Scottish family. He entered practice in Bourke Street with a relative, Dr. Thomas, who was the first to use ether in surgical practice in Melbourne. Dr. McCrae soon afterwards introduced chloroform at that institution, and it was the favoured anæsthetic in this country for half a century. McCrae became interested in land and owned several stations,

Farquhar McCrae, M.D., Edinburgh. (Inniskilling Dragoons.) Born at Westbrook, near Edinburgh, 1806. Died at Sydney, 1850.

giving the name to Moreland, an outlying suburb of Melbourne, which was one of his sheepruns. He died in Sydney in 1850 and was buried in the old Melbourne cemetery, and when the land was resumed for other uses his grave was moved to the Faulkner cemetery, next to that of John Batman, the founder of Melbourne.

A number of the doctors whose names have been mentioned merit special notice, but the limit of space for this paper has already been unduly stretched. In conclusion it may be fairly claimed that the honourable regard in which the medical profession is held in Australia today is owing in no small degree to the high standard of conduct which the medical pioneers maintained in their private, their professional and their public capacities.

SOME ASPECTS OF AN INFLUENZA EPIDEMIC. (1933.)

By Kenneth W. Starr, M.B., B.S. (Sydney),
Medical Superintendent, Newcastle Hospital, New South Wales.

Excluding cases of lobar pneumonia pneumonia of typical onset, with short history, pain in the chest, and rigors, in which dyspnœa and cyanosis and the malar flush were early and marked, fifty-five cases occurring in an influenza epidemic in 1933 are reviewed. Thirty-six infections were severe, nineteen were mild and there were five deaths.

The epidemic was no respecter of persons, and the patients admitted to hospital were aged from ten weeks to sixty-five years; the average age of onset was twenty-two years. The most severe cases were encountered between the ages of twenty-eight and thirty-five years. The incidence of the severe forms of the pulmonary type of the disease in patients under the age of twelve years was limited and, apart from one case, the disease was mainly seen in the form of an influenzal meningitis.

Locality did not appear to affect the type of the disease, as the most severe cases came from the best residential areas.

Clinical Course.

The onset was very gradual. The average incubation period was six days, but it varied with few exceptions between three and ten days. During this period the typical influenzal syndrome was encountered in its varying forms (sore throat, tracheo-bronchitis, sinusitis, pains in the back and legs, malaise, anorexia, chills, and pyrexia up to 39·1° C. or 102·5° F.). This syndrome was regarded, in reviewing the cases, as a mild type of influenza, and in nineteen instances the condition responded to treatment with aspirin. Once the syndrome had changed and the more serious aspect was lent to the disease, aspirin was not used, and the case was then regarded as one of the severe type.

After this prodromal period the onset of influenzal bronchopneumonia was heralded most frequently by: (i) apathy and listlessness, (ii) delirium, (iii) severe chills, but not rigors, (iv) severe vomiting, (v) pyrexia (above 39·1° to 39·4° C. or 102·5° to 103° F.), (vi) marked neutrophile leucocytosis.

The facies, in our opinion, was quite distinctive and was of the greatest value in diagnosis. The face was haggard and drawn, the eyes were half closed, and the facial muscles atonic. There was a dull muddy pallor, without or with slight malar flush and without the intense cyanosis of the lips and ears such as is seen in lobar pneumonia. *Herpes labialis* and even *auris* were present.

We have come to regard the facial combination, lethargy, muddy pallor and herpes, in the absence of malar flush and intense cyanosis as strongly suggestive of influenzal bronchopneumonia. The position adopted by the patient was inconstant, the

patient lying sometimes towards the affected and sometimes towards the unaffected side, probably because of the absence of pleural pain at this stage.

Delirium, which was not unduly noisy, was very frequent at the onset. The temperature was high at the onset. In the severe forms it ranged from 39·1° to 40·5° C. (102·5° to 105° F.), but frequently returned to normal within the first twenty-four hours, unaccompanied at times by a fall in the pulse rate, or at others with the typical critical fall.

This abrupt fall in temperature in the first twenty-four hours after the onset of severe symptoms heralded: (i) Continuous high temperature, ending by a crisis, almost like a chart of a typical case of lobar pneumonia. The crisis was the method of defervescence in sixteen of the thirty-six severe cases. The eighth day of the severe illness, or the fourteenth day of the actual influenza, was the average day of occurrence of the crisis. (ii) A markedly swinging chart with an excursion greater than 3·5° F. daily, ending as a rule by lysis. The most frequent type of chart encountered revealed a remittent temperature without correspondingly marked remissions of the pulse rate, the daily excursions ranging from 1·5° to 3° F., with evening rise and morning fall, and terminating by lysis between the seventh and twelfth days.

Once a termination by lysis or crisis had occurred, the recurrence of pyrexia indicated the onset of complications, of which I shall endeavour to give an account later.

The pulse rate as a rule corresponded to the temperature, and it was only in the most severe cases that very rapid pulse rates were encountered.

The blood pressure was as a rule low, the systolic reading registering rarely more than 110 millimetres of mercury. The diastolic pressure as a rule was low, the maximum reading recorded being 74 millimetres of mercury. When improvement set in, both the systolic and diastolic pressures rose. If the condition became more severe, the systolic pressure remained stationary or even rose, but the diastolic fell continuously.

The pulmonary signs at the onset were often difficult to elicit. The most frequent early findings were diminished movement, impaired percussion note, weak vesicular breath sounds and fine crepitant râles over the affected areas (usually the lower lobes of both lungs). This condition frequently persisted in one lung, but in the other lung, within twenty-four to thirty-six hours, bronchophony was elicited over patchy areas no larger than the bell of the stethoscope. The process then advanced to an incomplete patchy consolidation, typical high-pitched tubular breath sounds with loud râles being heard over these areas. The high-pitched, dry, tubular breathing (without râles) of lobar pneumonia was never encountered. During the ensuing twenty-four hours these incompletely consolidated zones became confluent and a condition of incomplete lobar consolidation resulted. This condition differed from the uniform, diffuse, dry, lobar consolidation of lobar pneumonia in that the consolidation was accompanied by râles throughout, and that in those zones intervening between the consolidated areas weak breath sounds and râles were still audible. Pleural friction rubs were not noted until the fourth or fifth day of the course of the severe form.

The features suggest that bronchopneumonic consolidation occurs secondary to a precedent infection of the upper respiratory tract, this consolidation then becoming confluent to produce incomplete lobar consolidation and spreading to the periphery with pleural involvement later. The marked early features of a pulmonary œdema persist throughout.

Concomitant Symptoms.

The concomitant symptoms were as follows:

1. Pain in the right side of the lower part of the abdomen was not infrequent at the onset, having no relation to the respiration (twelve cases). It was present in both the mild and the severe forms of the disease. Tenderness and hyperæsthesia were not associated with this symptom.

2. Constipation was marked and universal, but the associated meteorism was never so constant a feature as it is in severe lobar pneumonia.

3. Hiccup was most frequent and most troublesome, as many as ten to fifteen spasms per minute being recorded in one case. It occurred either at the onset or between the third and fifth days of the severe infection and was very persistent. Beginning suddenly, it would end just as suddenly. In our experience, hiccup associated with dyspepsia responds to carbon dioxide and oxygen, and that associated with early uræmia, cholæmia and early spreading peritonitis, to a large intravenous injection of saline solution, glucose and insulin; but the hiccup of this condition responded consistently to neither. Sinus arrhythmia was a very constant accompaniment in the spasms in two cases, and for one of these a hypodermic injection of atropine sulphate, 0·86 milligramme (one seventy-fifth of a grain), gave the most relief.

4. Pleural pain was not a marked feature at the onset. It was more commonly noted and was confirmed between the fifth and ninth days of the severe attack. The radiographic picture in these cases, in the early stages of the severe condition, shows a consolidatory process extending fanwise from the hilum into the middle and lower lung fields; at a later stage of the condition there is a densely consolidated lower part of the lung. The progress of the condition renders late pleural involvement only to be expected.

5. Acidosis resulting from severe vomiting was so pronounced in one case that rectal injections of saline solution with glucose and subcutaneous injections of insulin had to be given.

6. Retention of urine was very frequent and catheterization had to be resorted to in sixteen cases at some period or other of the disease.

7. *Herpes labialis* was extraordinarily frequent, and in one case covered an area 10 by 10 centimetres. In another case the herpes was present

over an area of 2 by 2 centimetres in the groove between the tragus and lobe of the left ear. The incidence of *herpes labialis*, dendritic corneal ulcer and cerebral symptoms in this condition is interesting.

8. Marked leucocytosis was a constant feature, a count of 15,000 cells per cubic millimetre, representing a common response with 80% to 90% of neutrophile leucocytes.

Complications.

The following complications occurred:

1. *Otitis Media and Myringitis.*—Influenza resulted in the usual crop of myringitis and *otitis media* (six cases in this series), but the number of mastoidectomies performed for acute mastoiditis after the attack had settled is the best index to its incidence in this district (twelve cases in three weeks).

2. *Sinusitis.*—Maxillary and frontal sinusitis were most frequent. All cases occurring in hospital settled down with conservative treatment (the nose being first packed with 3% ephedrine sulphate gauze and inhalations of menthol and *Olei Pini Sylvestris* being given every four hours). In one case, not settling down by the fifth day, the face remaining swollen and the nose not discharging freely, antrum lavage was performed with relief, the condition settling in seventy-two hours.

3. *Spreading Pneumonia.*—This was of quite frequent occurrence and presented as a complication in nine cases in this series. If the temperature (*a*) fell on the seventh to the eighth day and rose again subsequently, or (*b*) did not fall on the seventh or eighth day, we looked for bilateral bronchopneumonia or ipsilateral generalized bronchopneumonia as a complication.

The radiographic appearance of the lower lung field in an early bronchopneumonia revealed a picture closely resembling venous congestion.

The next progress was towards dense consolidatory affection of this area radiographically. These radiographic findings were presented in the opposite lung when this became affected, but only the latter picture was observed in those cases which were complicated by ipsilateral generalized bronchopneumonia. Apparently three stages of spread may be present in any one case.

(*A*) Primary stage. Pulmonary œdema spreading peripherally and progressing to incomplete lower lobar consolidation with pleural involvement.

(*B*) Second stage (three cases). The whole lung gradually became involved. Generalized bronchopneumonia resulted.

(*C*) Third stage (six cases). Contralateral lung involvement. Bilateral bronchopneumonia occurred.

4. *Parotitis.*—Four cases of unilateral painless swelling of the lower pole of the parotid gland came to our notice. All were diagnosed provisionally as mumps, although the mouth was always opened without difficulty. All forms of treatment, conservative or otherwise, produced the same results. Two cases followed the influenza after seven days; one was coincident and one preceded the attack of influenza by five days. The condition was invariably painless and settled down without treatment in three to four days.

5. *Empyema.*—Interlobar empyema occurred in one and *empyema thoracis* in two cases, but the condition was treated by aspiration for about seven days before attempting thoracotomy. The pus was always more fluid than in the fibrinous pneumococcal infection, although we almost invariably cultured pneumococci from these empyemata.

6. *Dendritic Ulcer.*—Dr. R. S. Candlish has kindly furnished me with notes of seventeen cases of dendritic ulcer of the cornea following influenza (*herpes febrilis corneæ*). Diminished or absent corneal sensation was the first symptom and suggested a neuropathic origin. Violent irritation, lachrymation and photophobia occurred, and tiny vesicles appeared on the cornea in rows or groups as a rule. These left minute abrasions staining with fluorescin. These ulcers, while quite superficial, tended to spread in all directions or by narrow grey striæ penetrating into the transparent cornea, emitting dendritic branches.

7. *Meningitis.*—Two cases of meningitis were encountered in infants due to *Bacillus influenzæ*, one of which followed a right middle lobe pulmonary affection. Both were fatal.

"Meningismus" was an extraordinary manifestation in three patients admitted to the institution in the late second and third weeks. In one case the posterior cervical muscles were very tender and the neck not markedly stiff, and salicylates produced the desired effect. The lumbar puncture findings were normal. In the second case, in which the patient had a normal chart and a pulse rate of 80, incoherence of speech, disorientation, stupor and marked mental hebetude, the neck rigidity persisted for three days and the condition responded to lumbar puncture. The fluid contained ten to fifteen polymorphonuclear cells per cubic millimetre, but was sterile on culture, and the sugar content was normal. All symptoms disappeared on the fourth day of the patient's stay in hospital (the twenty-third of the disease). The third patient had a slightly stiff neck with a temperature of 37·6° C. (99·8° F.) on the twentieth day of the condition. Lumbar puncture yielded clear fluid and proved beneficial by the third day. The ages of these patients were eighteen, twenty-two and twenty-six years respectively. In no case was Kernig's sign present.

Deaths.

Five deaths were recorded in this series from influenzal bronchopneumonia. These patients died soon after admission to hospital. The story was not infrequent that the patient opened the door to his visiting practitioner, who sent him to hospital because his pulse rate was rapid, and the next day

the patient was dead. The most susceptible were young adults between the ages of twenty-five and thirty-five. The picture on the patient's admission to hospital was one of profound vasomotor collapse. The facies carried an expression of profound apathy—pallor was extremely marked and sweating profuse. *Herpes labialis* was very frequently present. Slight cyanosis of the ears was not unusual, the lips, however, being much more cyanosed. Dyspnœa was pronounced. In the later stages the pallor became greyish and the sweating increased. The temperature was high (40° to 40·5° C. or 104° to 105° F.) and the pulse very rapid (160 to 200). The most interesting feature in these cases was the blood pressure.

Our most frequent findings were as follow. The pulse pressure was usually high (35+). Progressive readings till death showed that the systolic pressure was maintained and might even rise, but that the diastolic pressure fell even 15 or 20 millimetres of mercury till death occurred. *Post mortem* the disorganization of the suprarenal glands was a constant finding and in many cases the whole gland might be replaced by an amorphous mass of blood clot.

In one such case, that of a patient who died thirty hours after admission, the *ante mortem* blood culture revealed a bacillus with morphological and cultural characters of Pfeiffer's *Bacillus influenzæ*, and the organism was also grown in pure culture from a very early involvement of the mitral valve (an acute bacterial endocarditis). This was the earliest recovery of micro-organisms in such a case that I had ever seen. The bacillus was also grown in pure culture from the exhaled air on a blood plate.

It is our impression that the cause of death was not cardiac, but vasomotor failure. If we could replace the disorganized suprarenal gland we might tide the patient over this serious crisis.

Signs of Improvement.

The best and earliest signs of improvement were:

1. Polyuria. In one patient with retention of urine 2·4 litres (eighty ounces) were withdrawn during twelve to eighteen hours.

2. Change in appearance. The listlessness abated and the muddy pallor improved.

3. Appetite improved, quite suddenly in some cases, fluids first, then soft foods were taken in great quantities.

4. Temperature and pulse rate fell by lysis or crisis.

5. Within the next four days the patient made a rapid return to normal and felt very well.

Treatment.

Our trust was placed in morphine, or morphine and atropine if hiccup occurred. Hydrotherapy was employed as a routine measure, as we believed it to be a reliable vasomotor stimulant. Adrenaline was injected subcutaneously in therapeutic doses (0·6 to 1·0 mil or 10 to 15 minims) in an equal quantity of saline solution every four hours. We regard this as a logical form of therapy in view of our clinical and *post mortem* findings. "Carbogen" (5% carbon dioxide and oxygen) was variable in its therapeutic excellence. Some people it distressed, others felt greatly refreshed, and certainly for the older patients whose chests were emphysematous, the relief it gave was remarkable. The problem of promoting an efficient vasomotor influence on the circulation in serious cases is still very much under consideration.

Acknowledgements.

I beg to acknowledge my indebtedness to the members of the honorary medical staff of the Newcastle Hospital for their permission to publish these data, and to my resident medical staff for their keen cooperation and unfailing willingness to assist me in investigation and treatment.

Reviews.

A TEXT BOOK OF UROLOGY.

It is a regrettable fact that few suitable text books are available for those who wish to acquire added knowledge of matters urological. Reference has perforce to be made either to a urological treatise, replete with discussions and case reports and containing a mass of detail almost too extensive to warrant the effort necessary to sift out the essential information required, or to a general surgical text book, which usually goes to the other extreme and is of much less value still. Between these two extremes Le Comte's "Manual of Urology" does much to satisfy a very definite need.[1]

The author, who is Professor of Urology at Georgetown University, has designed the book primarily for the student, to whom it is his object to supply "a groundwork of fundamentals on which to build a larger structure to be gained during his internship, post-graduate studies, and practice", and in this he succeeds admirably. The first three chapters, constituting over one-quarter of the book, are devoted to methods of examination, symptomatology and treatment, following which the book deals systematically with affections of the various parts of the urinary tract, each section commencing with a short account of the anatomy of the part in question. The subject matter is well, simply and concisely set out, and is illustrated with line drawings which are quite adequate for their purpose. There are no long descriptions of cystoscopic or operative technique, and conclusions are given without extended discussions, case reports or references, and with a complete lack of personal bias. All non-essentials are omitted, so that the book, despite its small size, covers practically the whole field of urology, containing a very large amount of valuable and reliable information.

We can thoroughly recommend this book. Though written primarily for the student, it contains much more information than the Australian student is at present required to know, but would be of definite value to him for reference, if not for study, while for graduates it would form a most valuable introduction to a more detailed study of urology. It would similarly be of great service to any practitioner desiring to increase his urological knowledge, especially in country districts, and to the first or second year graduate who wished to do some really useful reading.

[1] "Manual of Urology", by R. M. Le Comte, M.D., F.A.C.S.; 1933. London: Baillière, Tindall and Cox. Demy 8vo., pp. 323, with illustrations. Price: 18s. net.

The Medical Journal of Australia

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References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

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HEROIN.

Thomas De Quincey described opium as the one sole catholic anodyne which has been revealed to man, as the one sole anodyne which in the majority of cases is irresistible, and as by many degrees the most potent of all known counter-agents to nervous irritation and to the formidable curse of *tædium vitæ*. Opium in one form or another has been the cause of much wreckage of human life. On the other hand, morphine, the alkaloid of opium, is, of all the drugs at the disposal of medical practitioners, the most indispensable. To enumerate its uses and to acclaim its virtues are impossible in an article such as this. During the course of years morphine has been produced in several different forms; and some of these are found to be of value when morphine cannot be used on account of certain unpleasant symptoms that follow its exhibition. With two general statements on the subject all medical practitioners will agree. The first is that no indispensable means of alleviating human suffering, physical or mental, should be denied to medical practitioners. In the second place, no drug that is likely to enslave men and women and to undermine their physical and moral well-being should be obtainable by the public.

For long it has been recognized that diacetylmorphine, commonly known as heroin, is a most potent habit-forming drug. Addiction to its use is said to have become widespread and this has given much concern to the governments of many countries. As long ago as 1923 the Advisory Committee of the League of Nations on Traffic in Opium and Other Dangerous Drugs adopted the following resolution:

> Diacetylmorphine (heroin) is a very dangerous drug, still more toxic than morphine and still more dangerous as regards the forming of a drug habit. Since the pharmacologists and clinical practitioners admit that heroin can be dispensed with in therapeutics, the Mixed Sub-Committee recommends that the possibility of entirely forbidding its manufacture should be considered.

Soon after the adoption of this resolution the Assembly of the League of Nations sought the views of various governments as to the possibility of a total suppression of the manufacture of heroin or of its limitation to the minimum amount required. Following inquiry in Australia, an official communication was sent to the Secretary-General of the League of Nations in February, 1925, expressing the opinion that in view of the purposes for which the drug was used in Australia, its use in medical practice was essential and that it was not desirable to dispense with or restrict its use. A similar opinion was expressed in Great Britain. The annual consumption of heroin in Australia is approximately twenty kilograms, or about forty-four pounds; and almost all supplies are obtained from Great Britain. With the exception of New Zealand, Australia uses more heroin than any other country. New Zealand uses 3·36 kilograms per million inhabitants; Australia uses 3·10 kilograms. Denmark uses 2·81 kilograms, France 2·06, Canada 1·75, Sweden 1·63, Belgium 1·11, the United Kingdom 1·09, Switzerland 0·25, Germany 0·20, and the United States of America 0·06 kilogram.

The subject was brought up again for discussion by the League of Nations at Geneva in 1931, and at the Conference for the Limitation of the Manufacture of Narcotic Drugs a resolution was adopted recommending that each government, in conjunction

with the medical profession, should examine the possibility of abolishing or restricting the use of heroin and should communicate the result of the inquiry to the Secretary-General of the League. In November, 1933, the representatives who acted on the Committee for the Revision of the British Pharmacopœia on behalf of the Federal Health Council of Australia, were asked for their advice. These persons were Dr. F. J. Wilkinson, of Melbourne, Mr. A. R. Bailey, of the Pharmaceutical Society of Australia, and Dr. John MacPherson, Lecturer in Therapeutics in the University of Sydney. Some diversity of opinion was expressed in the replies. The opinions of many bodies were included in the replies. With two exceptions the view was in effect that there was no reason for prohibition of the manufacture of the drug, that it possessed special advantages, and that present safeguards were adequate. The more decided opinion in favour of abolition came from Dr. John MacPherson; and in view of his eminence as an authority in therapeutics, part of his reply may be quoted. He wrote that heroin had no insuperable advantages over morphine, codeine or other opium derivatives, and that the risks in its use were incomparably greater than any benefits. He stated emphatically that it was not indispensable and that its total abolition would be of extreme advantage, an advantage emphasized by the real peril of addiction. He considered that it was replaceable by other drugs.

The matter was next brought up for consideration by the Federal Health Council in March, 1934. In view of the diversity of opinion that had been expressed in Australia, it was felt that some further examination would have to be undertaken if finality and a verdict representing all Australian experience were to be obtained. The Federal Health Council therefore referred the whole subject to the Federal Council of the British Medical Association in Australia. The Federal Council, as reported in this journal on September 15, 1934, after discussion, decided to take steps to ascertain the experience and the views of Australian practitioners. It was decided to ask the several Branches to find out from their members whether cases of addiction to heroin had come under their notice and whether, in the opinion of medical practitioners, heroin possessed any advantages not possessed by morphine or any of the other opium derivatives. The Editor of this journal also agreed to urge medical practitioners to give details of their experience. All medical practitioners in Australia are asked to communicate either with the secretaries of the Branches or with the Editor of this journal, stating: (i) whether they have in the course of their practices found any addiction to heroin, (ii) whether they have found it necessary to use heroin when, owing to the occurrence of unusual symptoms, they have been unable to use morphine or some other opium derivative. Quite apart, however, from the question as to whether heroin should or should not be manufactured, medical practitioners should remember that heroin is a drug liable to give rise to addiction and that it must be prescribed with the utmost caution.

Current Comment.

BODY TEMPERATURE.

The clinical thermometer is one of the commonest instruments of precision, and so universal is its use by the members of the medical and nursing professions, as well as by the laity, that it is difficult to credit that a couple of generations ago it was unknown. Many accurate studies have been made of the temperature of the human body in conditions of health and disease, but, of course, these are of value to the practitioner of medicine only in setting general standards, for his observations are only approximate. But when any instrumental method is used it is easy to fall into the fallacy of assuming a false accuracy. It is essential to remember that the recorded temperature indicates only a fairly accurate estimate, and also that the standards by which it is judged are in themselves only an average. It is only a short time since attention was again drawn to the fact that the temperature of the person in bed will be lower than that of more active people; this is important, for it must be remembered that the apparently subnormal temperature of the patient completely at rest may be the normal for this state. The observations to which attention is here drawn concern the differences between the oral and rectal temperatures. Since rectal temperatures are used in the nursing of infants, and are also adopted as standard in some institutions, such as sanatoria for tuberculosis, it is of some importance to know what is the average difference between the oral and rectal readings. This is usually accepted as about one degree on the Fahrenheit scale, but

H. T. Carmichael and F. T. Linder, in discussing some observations they have made in two series of subjects, point out that there is a considerable possible variation in this difference.[1] Exercise, cold weather and other influences may cause the difference to fluctuate from a mere fraction of a degree to almost two degrees. Indeed, several authorities give the average difference as 1·8° Fahrenheit, though the consensus of opinion seems to favour a figure of from 0·5° to 0·75° difference. Of course it is recognized that in ordinary clinical work it does not matter much, so long as one definite standard is adopted. The writers of this article were specially interested in two groups, one a normal taken from healthy persons, the other suffering from schizophrenia. They went to considerable trouble to insure that the thermometers they used were comparable in their readings, and also that the readings were reliable; this called for care, especially in dealing with the schizophrenics. It was found that the diurnal variations between morning and afternoon readings were very small, not much over one-tenth of a degree as a rule. When averages were struck for the whole of the normal group it was found that the rectal temperature was about one degree higher than the oral. Individual variations, however, ranged from 1·79° to 0·42° F. The opinion was formed that while on the average the generally accepted degree of difference was accurate enough, it was by no means reliable in any single individual. An interesting finding was that the difference between the two readings in the schizophrenic group was lower than in the normals. While the two groups had comparable rectal temperatures, the normals had a lower oral temperature. This was interpreted as being due to the greater activity of the normal persons, though the suggestion is made that the schizophrenic subjects may have some difference in their heat-regulating mechanism. In view of the known vascular changes seen in psychotic patients, this is possible. It would seem desirable, therefore, to keep to one standard method with any given group of patients and not to attempt a comparison of charts of temperatures taken by different methods. We are all well aware of the high margin of error in clinical observations; we should also be aware that the employment of any method of precision does not remove the possibility of error or fallacy.

PEPTIC ULCER.

No one will deny that the causation of peptic ulcer presents a problem that is both complex and of absorbing interest; and everyone will agree that until the mechanism of the production of these ulcers is understood, their prevention and cure will not be undertaken, as they should be, with assurance and hope of success. Ever since Bolton reported his experimental observations years ago and gave a definite impetus to investigation of the problem, many workers have come into the field and have added their quota to knowledge on the subject. One of the most important recent contributions was that by Cushing, when he showed that there were good grounds for believing that a relationship might exist between the central nervous system and the genesis of peptic ulcer. The peptic ulcer problem is a twofold one; and this may easily be forgotten. Not only has the cause of the local lesion to be determined, but the reasons for its progress and its chronicity have to be discovered. When we call to mind the many probable factors that have been shown to exist—mechanical, biological and chemical—it at once becomes apparent that the factors originating the lesion may also have something to do with its progress, with the vicious circle that appears to exist. If this is not forgotten and if we also remember that results of animal experimentation are not always applicable to man, it is of interest to consider experimental work recently carried out by Benjamin N. Berg.[1]

In the first place Berg points out that many investigators have studied the occurrence of peptic ulcers in dogs in which bile was excluded. Thus Kapsinow produced duodenal ulcers in 17 of 43 dogs by excluding bile from the intestine. Berg and Jobling found that peptic ulcers occurred in 10 of 23 dogs with biliary fistulæ and biliary obstruction. Bollman and Mann reported the occurrence of peptic ulcers in 64 of 87 dogs with jaundice after ligation of the common duct. And so on. Berg's observations were made on sixteen dogs which were completely deprived of pancreatic juice by means of fistulæ. The animals received the standard laboratory diet, supplemented by sodium chloride (two animals received no sodium chloride). All the animals lost weight and after varying periods showed signs of profound metabolic disturbance. At autopsy the livers manifested degenerative changes, consisting essentially of fatty infiltration and necrosis of hepatic cells. In only one instance was definite ulceration found, and this in the duodenum. In two instances multiple small superficial erosions were present in the stomach and duodenum. Berg states that his results indicate that the absence of neutralization of gastric acidity by alkaline secretions is not an important factor in the production of experimental peptic ulcers in dogs. This fits in with the observation that gastric acidity is regulated by factors other than the regurgitation of alkaline duodenal fluids. The preponderance of evidence indicates that peptic ulcers occur more readily in dogs after the exclusion of bile than after the loss of pancreatic juice. The liver changes found by Berg are not surprising. As he points out, the significance of pathological changes in the liver with respect to function is limited. Since the exclusion of bile or pancreatic juice involves many complicated functional derangements, he wisely prefers not to attempt to interpret the tendency for peptic ulcer to develop under one set of experimental conditions and not under another.

[1] *The American Journal of the Medical Sciences*, July, 1934.

[1] *Archives of Surgery*, June, 1934.

Abstracts from Current Medical Literature.

OPHTHALMOLOGY.

Ptosis of the Eyelid.

R. Affleck Greeves (*British Journal of Ophthalmology*, December, 1933) suggests that in the treatment of ptosis of the eyelid, instead of suturing a piece of the superior rectus muscle to the tarsus, a better plan would be to suture the upper lid to the superior rectus. The superior rectus muscle is exposed by a horizontal incision and a silk thread is passed under the tendon; the two ends secured by catch forceps are used to control the eye. The upper lid is everted and the conjunctiva above the incision is seized by forceps and dissected upwards until the upper edge of the tarsal plate is exposed. This appears as a convex rounded border and is gripped centrally by catch forceps, on each side of which a thin strip of tarsus is cut with a fine pair of bent scissors from without inwards and within outwards respectively, each strip being left attached centrally. The width of the uncut area equals that of the rectus tendon. A number 4 needle threaded with number 1 silk is then passed through the end of one of the strips and again through the corresponding edge of the rectus tendon, a similar suture being passed through the other strip and the other edge of the tendon. The effect is regulated by the position of the suture in the rectus tendon. If the position is judged to be correct, the sutures are tied. It is not necessary to insert conjunctival sutures. A sausage-shaped pad placed over the upper lid, kept in place by strapping and a bandage, is the best protection for the cornea. After healing, the cosmetic effect may be improved by the excision of a strip of skin from the upper lid.

Radiation and Protective Glasses.

A. Rugg-Gunn (*British Journal of Ophthalmology*, February, 1934) gives a tabulation of the electro-magnetic radiations from the cosmic (ultra-gamma) ray of 0·001 Ångström units wave-length, through the ultra-violet visible spectrum and infra-red on to the Hertzian waves with a wave-length of 10^{-7} to 10^{-13} Ångström units. He gives a more detailed account of the ultra-violet visible rays and infra-red areas as regards their source, the influence of the landscape and their effects on the eye. Next follows a wealth of detail concerning the various coloured glasses manufactured for protective purposes. For reduction of glare Chance's didymium glass is recommended or, failing this, Crookes's A1 glass. For aviation in the tropics the ideal glass is Crookes's B1 or B2 with a thin metallic film adherent to its outer surface. A glass is now being perfected upon which, by the evaporation method, a film of aluminium is deposited. On snow fields is suggested Crookes's B2 glass, upon which a metallic film, for example, gold, is sputtered. The cover glass is a uranium glass, more amber in colour than ordinary canary glass, and fluorescent. Reflecting glasses make excellent retinoscopes and do not need an aperture. A silver film is preferable to gold or platinum.

Operations for Detachment of the Retina.

D. K. Pischel (*American Journal of Ophthalmology*, December, 1933) describes and compares the modern operations for retinal detachment. Gonin sometimes spends hours in localizing the tear, and sometimes as long as forty minutes in marking out the point on the sclerotic with gentian violet where he decides to make a perforation. He thrusts in a Graefe's knife, withdraws it, makes another perforation with a two-millimetre Paquelin cautery for one second and withdraws the cautery. Weve, after careful localization, makes a perforation with a fine diathermy needle for three seconds. Linder and Guist make multiple trephine holes over a large area, touch them with a stick of potassium hydroxide and neutralize with a 1% solution of acetic acid and flood with saline solution. Using a punctum dilator, Guist perforates all holes; Linder perforates about every third hole. Linder now makes fewer trephine holes and undermines each with a spatula. Safar uses fine, short, needle-like pins, four millimetres long, and walls off an area. The pins are pressed through the sclera with the active electrode of the diathermy current. He also uses "combs" on which are fixed from three to seven pins. Larsson tries to create a large area of diffuse chorioiditis by applying a small blunt diathermy electrode to numerous points on the sclerotic. Then a single trephine opening is made in the most dependent of the treated area. Details of these procedures are given in the original article.

Physiological Lensless Spectacles.

C. C. Guthrie (*Archives of Ophthalmology*, February, 1934) refers to the well known fact that light passing through a small hole may be caused to form sharply defined images on a screen. "By properly graduating the size of the holes and the spacing in a multiple perforated plate or diaphragm placed before an eye requiring powerful glasses for satisfactory vision the subject is enabled to see clearly at all ranges." On the upper part of the disk the holes for far vision should be 1·5 millimetres, on the lower, for near vision, 0·3 millimetre. The spacing is from three to four millimetres.

Interpretation of the Stripe-Formed Optic Papilla.

G. L. Walls (*Archives of Ophthalmology*, February, 1934) reminds us that in diurnal members of the Sciuridæ (squirrel family) the optic papilla is a long, narrow, horizontal band located dorsally and slightly temporally. The tree squirrels, chipmunks and prairie dogs are among the most perfectly diurnal mammals in the world, noted for their visual acuity. While they lack a fovea, they have more cones than rods—an approach to universal macularity. The flying squirrel, strictly nocturnal, has a retina rich in rods. It is known that a single optic nerve fibre serves many rods, whereas each cone has almost a nerve fibre to itself. Hence the eye with a cone-supplied retina will have a much thicker optic nerve than the eye with a rod-supplied retina, and the large scotoma produced would be a handicap. The stripe form of the papilla is assumed to minimize the disadvantage of the blind spot. The papilla of the flying squirrel is circular.

Prevention of Spontaneous Retinal Detachment.

K. Linder (*Archives of Ophthalmology*, January, 1934) has devised a model retina consisting of a layer of celloidin which lines the inside of a round glass flask, filled with liquid. If a hole is made in the model retina with a protruding margin and the flask is rotated round its centre, the layer of celloidin soon becomes detached. This experiment demonstrates that retinal detachment must take place in every case in which the retina shows a so-called flap-hole, which always opens into subvitreous fluid or liquefied vitreous. Immobilization of the eyeball may stop the progress of the detachment and diminish its depth. The author uses the *Lochbrille* or hole spectacles as the simplest instrument for excluding movements of the eye. The eyes must be predisposed to this disease; they have one pathological feature in common: partially detached or liquefied vitreous or both. The shocks caused by sudden movements of the eyeball may at times exert a stronger pull on the parts of the retina to which the remaining vitreous is fixed. This explains the cause of the flap-hole. Other measures that could be taken to immobilize an eyeball are the section of all the ocular muscles and the wearing of Punktal lenses with the convex surface towards the eye and the concave surface outwards. The strong peripheral aberration produced would compel the patient to use only the centre of the glass.

Threading of Needles.

A. F. MacCallan (*British Journal of Ophthalmology*, January, 1934) describes a method of threading needles with silk, devised by Dr. Poth, of San Francisco (*The Journal of the American Medical Association*, February 25, 1933). Take a piece of wire used for keeping patent the needle of a hypodermic syringe. Make it into a loop and grasp the two ends with an artery forceps. Pass a piece of silk through the loop and pull tight to shape the end of the wire so that it will pass through the eye of the needle. Remove the silk and pass the doubled wire through the eye of the needle. Pass the silk through the loop of the wire and draw it through the needle.

OTO-RHINO-LAYNGOLOGY.

Radiological Examination of the Sinuses in Chronic Arthritis.

R. G. SNYDER, S. FINEMAN AND CORNELIUS TRAEGER (*Archives of Otolaryngology*, January, 1934) present a report covering a five-year period of study of the Röntgenological examination of the nasal sinuses in chronic arthritis. A routine stereoscopic Röntgenological study of the sinuses was made in 386 cases of chronic arthritis. In 93 cases, by a combined rhinological and Röntgenological study of the sinuses, sinusitis was proved to be present. Only 16 of the 93 patients were aware of the fact that they harboured disease of the sinuses. In the remaining 77 patients the sinusitis was of the silent or asymptomatic type. Rhinological treatment of these patients resulted almost invariably in definite clinical improvement of the arthritis. The degree of arthritis bore no relationship to the degree of involvement of the sinuses. Some of the most brilliant clinical results were obtained in the patients with advanced arthritis following rhinological treatment of sinuses only slightly or moderately involved in a pathological process. Some of the patients responded to conservative rhinological treatment, while in others more radical procedures were necessary before a good clinical result was obtained.

Naso-Pharyngeal Fibroma.

WILLIAM BREWSTER ALLAN (*Archives of Otolaryngology*, February, 1934) describes and comments upon naso-pharyngeal fibroma. It is an extremely vascular tumour, found most frequently in adolescent boys. Sarcomatous and carcinomatous changes may occur. Surgical removal has led to facial deformity and loss of life from hæmorrhage and shock. The implantation of radon seeds into the base of the tumour is the most suitable treatment.

Sensory Disturbances Following Radical Operations on the Antra.

S. L. SHAPIRO, NOAH D. FABRICANT AND ROBERT M. STEPHENS (*Archives of Otolaryngology*, March, 1934), in a paper dealing with the sensory disturbances which follow radical operations on the antra, record their results with the use of the vertical incision recommended by Menzel and with the usual horizontal incision. Seventeen patients were subjected to bilateral Caldwell-Luc operations, the vertical incision being made on one side and the usual horizontal incision on the other. Ten of these patients returned one year later for a check-up as to sensory abnormalities. No appreciable advantage in favour of the vertical incision was discovered from the standpoint of avoiding disturbances of sensation which may follow the radical operation on the antrum; some technical advantages in the performance of the operation may be obtained through the use of this incision. The course of the alveolar nerves, particularly the anterior alveolar, is such that damage to one or more of them is practically unavoidable in performing the usual type of radical operation on the antra; this is a logical factor in some of the anæsthesia, paræsthesia and hyperthesia complained of by patients. There is no evidence that disturbances of sensation in the teeth are accompanied by actual changes in the pulp.

Cancer of the Larynx.

J. H. DOUGLAS WEBSTER (*The Journal of Laryngology and Otology*, July, 1934) deals with the treatment of cancer of the larynx by Coutard's protracted-fractional X ray method and discusses recent advances made in the technique of X ray treatment of advanced cases of cancer of the larynx. Critical consideration of the evidence that exists already in favour of this new method shows conclusively, in the opinion of the author, that in the future X radiation therapy will be useful at least in squamous-celled carcinoma of the larynx, in pharyngeal, tonsillar and probably some other squamous-celled carcinomata, and possibly for cancer in other sites and for other types of cancer.

Atrophic Rhinitis.

JAMES ADAM (*The Journal of Laryngology and Otology*, June, 1934) in a paper dealing with atrophic rhinitis, gives the following summary of his analysis of 141 cases of this disease. In at least 78% the affection begins before puberty, and in at least 42% during the first seven years of life. These are the years during which the face, nose and its accessory cavities are normally developing most quickly. This development is consequently retarded. When the disease begins in adult life, as it rarely does, the typical facies of atrophic rhinitis does not occur. The disease begins as an inflammation of the nasal mucosa, and in at least half the cases, probably over 66%, sinusitis is present. This tends to keep the inflammation alive and is often missed. The ethmoid is more often affected than is realized. This statement also applies to adenoids. The present custom of dealing with adenoids in early life has reduced the incidence of atrophic rhinitis. Another factor is deficiency in vitamins, especially vitamin *A*. This deficiency impairs defence against infection and lowers endocrine function. It may also impair nervous function. The mucosa reacts first by hyperplasia; later, owing to fibrosis, there is glandular atrophy and change from columnar epithelium to stratified epithelium; but if the sinusitis is conquered early enough by proper surgical and other measures, there may be considerable recovery with disappearance of crusts and fœtor. The bone of the thin lamellæ of the turbinates and of the ethmoid cells react by atrophy; that of the walls of the accessory cavities reacts by sclerotic thickening. Similar sclerosis is found in the mastoid process of children with chronic suppuration of the middle ear. The paranasal sinuses may fail to reach their full development, with consequent facial modification.

Suppurations of the Petrous Tip.

EDMUND P. FOWLER, JUNIOR (*The Journal of the American Medical Association*, May 19, 1934), in a paper dealing with suppurations of the petrous tip, gives the case reports of five patients. He concludes that petrositis is much more common than is generally supposed. Meningitis often brings patients with petrositis to the general practitioner or neurologist. The eye symptoms occasionally bring him to the ophthalmologist. Petrositis should be considered in the presence of trigeminal pain, abducens paralysis or an aural discharge after a well executed mastoidectomy. Petrositis should be watched for on the affected side if the mastoid and zygoma on either side are highly pneumatized. The two sides usually become pneumatized in the same fashion. If one side becomes sclerotic, especially about the antrum or hypertympanic region, this sclerotic bone may cut off drainage from the deeper and more pneumatized portions of the bone and so lead to the formation of pockets in the mastoid or petrosa. Partial pneumatization may lead exudate into the tip, where it may pocket or extend into the marrow spaces to produce an osteomyelitis. Petrositis usually subsides spontaneously with adequate drainage from the middle ear. If this is not facilitated by the ordinary mastoid operations, further curetting, especially in the peritubal and perilabyrinthine regions, will often uncover a pocket of pus. Inadequate drainage of the petrosa may result in a chronically discharging ear or in meningitis and death. The method of invasion of the meninges may be manifold, either directly through a subdural abscess or through the veins draining the area, through the labyrinth, through the carotid sheath or through the blood stream.

Abscess of the Brain.

K. W. MACKENZIE (*The Journal of Laryngology and Otology*, June, 1934) records eight cases of brain abscess, six of which were cured. Seven of the cases were the result of chronic suppurative *otitis media*. Four of these were temporo-sphenoidal lobe abscesses; in two of the cases recovery took place. Three were cerebellar abscesses; in these cases all three patients recovered. In six of the eight cases drainage was used at operation and all the patients got well. A decompression operation was performed on one of the remaining two cases, but before a final operation for drainage of the abscess could be carried out the abscess burst into the ventricle and the patient died. In the other case an exploratory operation was undertaken without success, but ultimately the abscess burst through the surgical wound and the patient died eight days later. In the cases recorded a mallet and gouge were

used. In the opinion of the author, there is an optimum time for operation, and in the eight cases recorded it has been part of his technique to postpone operation until pressure symptoms have become well marked, by which time a local immunity has developed. Besides this development of immunity, delay renders the discovery and drainage of the abscess very easy, and also results in an immediate hernia of the brain on incision of the dura, which, by compressing the dura against the bony margins of the trephine opening, lessens the risk of the onset of meningitis. Regarding the route of drainage, in seven cases drainage was established through a clean trephine wound of 2·5 to 3·75 centimetres (one to one and a half inches) in diameter, situated either in the squamous portion of the temporal bone or posterior to the sigmoid sinus. The eighth case of frontal lobe abscess was drained through the opening caused by an osteomyelitis of the frontal bone. The author's conclusions are that with our present knowledge a "delayed" operation is necessary for success and that drainage through a large trephine wound is more likely to be successful than drainage through the mastoid alone. This allows the removal of the brain tissue sloughs, which, if retained, are liable to give rise to fresh abscess formation. The retention of tubes beyond forty-eight hours is unnecessary in most cases, for invariably by that time the hernia has forced them out, along with sloughs of brain tissue. In seeking for an abscess it is an advantage to use angular forceps, as the blades can be expanded and so allow the pus to escape. In the case of the frontal lobe abscess, the treatment of the resulting hernia, which was almost as large as a tennis ball, caused much worry, for treatment with saline solution or carbolic dressings had little effect. The literature on the subject was not helpful until an American book was found which indicated what seemed to be a very drastic method. This consisted in covering the hernia with rubber tissue moistened with normal saline solution, sealing the edges to the scalp with vaseline and maintaining it in position for ten days without disturbance. A warning was issued about the resulting odour, which, in the author's case, was so objectionable to the other patients in the ward that the dressing was removed at the end of five days. The result was remarkable, for the hernia, which had defied other treatment for three weeks without any evidence of decrease in size, had completely subsided. The author has now treated four patients by this method and has found it very successful.

Radical Surgery of the Maxillary Sinus.

Edward F. Ziegelman (*The Western Journal of Surgery, Obstetrics and Gynecology*, February, 1934) deprecates the almost universal use of general anæsthesia in sinus surgery. Many patients already have chronic infections of the naso-pharynx or chronic pulmonary changes. Rectal and local anæsthetics are becoming more favoured for these patients. The author shows dissections to illustrate positions in which sensory nerves may be blocked or infiltration anæsthesia employed. The spheno-maxillary fossa is infiltrated either through the skin surface or from the vicinity of the second molar tooth. The infra-orbital nerves are blocked and surface anæsthesia is utilized for the nasal surfaces. "Novocain" is the anæsthetic of choice. At least ten minutes should elapse from injection to incision. The premaxillary muscles are vertical and slightly oblique, hence an inverted T-shaped incision causes less trauma than the sublabial transverse incision of Caldwell-Luc. The author concludes that if a pre-operative narcotic is employed complete anæsthesia of the maxillary sinus may be obtained by the block method described, and further, that this is the most suitable method.

MEDICINE.

Intracutaneous Tuberculin Test.

D. Ayman (*The Journal of the American Medical Association*, July 21, 1934) records the results of intravenous injection of diluted old tuberculin in the diagnosis of tuberculosis. Various dilutions were tried; and 1 in 50,000 of sterile Ringer's solution, to which 0·2% phenol was added, was found most reliable. One-tenth cubic centimetre of this dilution was injected into the forearm of the person to be tested; reactions were noted after forty-eight and seventy-two hours. An area of erythema or of induration was observed; this was regarded as indicating a positive reaction if the area was greater than ten by nine millimetres. Of 202 non-tuberculous patients tested 97% gave no reaction, whereas 93% of patients with active tuberculosis gave positive results. In patients who were seriously ill or moribund the test was not reliable. Further work is necessary to ascertain the most satisfactory dilutions of different tuberculins for the test.

Immunity Following Vaccination against Smallpox.

W. Palmer Dearing and M. J. Rosenau (*The Journal of the American Medical Association*, June 16, 1934) have investigated the records of vaccinations of medical students to determine the duration of immunity conferred against smallpox by vaccination. Records of vaccination of medical students during the last three years have been supplemented by data collected from similar records of 18, 15, 14 and 10 years ago; the previous vaccination history was available in all cases. The character of the eruption and the time of reaching its height were used as the criteria and reactions were classified as immediate if they remained papular throughout the course; as accelerated, if a vesicle developed and the height was reached between the fourth and ninth days; as primary, if they followed the recognized stages to reach the maximum on the tenth day or later. There were 557 medical students vaccinated and the results have been tabulated according to the time period since the last vaccination and also according to the number of previous vaccinations. Of 337 students vaccinated ten years or less after previous vaccination, only one gave a primary type, fifteen, or 4·7%, gave accelerated "takes", and 95% an immediate reaction. Of the 168 students vaccinated from ten to nineteen years before, six, or 4%, gave primary "takes", and fifty, or 29%, accelerated "takes", and 67% immediate reactions. After twenty years, of fifty-two reactions studied, 67% were immediate, 25% accelerated, and 8% primary. Revaccination reinforces protection and is still advised whenever the risk of exposure to the infection is taken.

The Gastric Ulcer-Cancer Problem.

Harry Shay and Eugene M. Schloss (*Annals of Internal Medicine*, April, 1934) are of the opinion that gastric ulcers undergo malignant change in no more than 5% of cases. By reviewing the duration and nature of the symptoms, together with the effects of adequate treatment, the writers attempt to differentiate clinically between benign and malignant ulcer. Most writers agree that the average length of the history in benign ulcer is seven years, whereas the patient who is suffering from gastric carcinoma gives a history of less than twelve months. It is necessary to exercise caution, however, in interpreting a long history as indicating ulcer or, especially when malignant disease is found, as indicating ulcer-cancer. Primary gastric carcinoma, especially the ulcerating variety, will frequently respond readily to the treatment for benign ulcer, symptoms disappearing entirely and gain in weight being noticed. Radiographic findings may show a temporary improvement due to the diminution of the associated inflammatory reaction. The value of the estimation of gastric acidity is then discussed, the conclusion being that, given an ulcerating gastric lesion, an accompanying anacidity is presumptive evidence in favour of carcinoma as against benignity; but the presence of normal acidity or hyperacidity is of little, if any, value in militating against malignant disease. The continued presence of occult blood in the gastric contents when a strict ulcer *régime* is being observed, is strongly in favour of carcinoma. A positive reaction in the presence of benign ulcer will rapidly disappear under suitable treatment. X ray evidence is of no value in distinguishing benign and malignant ulcer in so far as the appearance of the lesion is concerned, but the site is of more value, proximity to the pylorus favouring malignant disease. The three factors dominating the authors' handling of any particular

case of gastric ulceration are: duration of symptoms, occult blood in the gastric contents, and gastric acidity.

Arteriosclerosis in Diabetes Mellitus.

ON account of the high and increasing incidence of vascular disease among diabetics and its influence on mortality, I. M. Rabinowitch *et alii* (*Annals of Internal Medicine*, June, 1934) studied the cardiovascular conditions in 1,500 diabetics. Mortality and morbidity data indicate that vascular disease is one of the most important contributing factors to the high death rate of *diabetes mellitus*, in spite of the control of coma and of tuberculosis. The age at which these conditions develop is the most serious point brought out in the investigation. Earlier diagnosis may enable us to determine some prophylactic treatment, so an attempt was made to evaluate the relative sensitivities of the following well recognized procedures: clinical examination, examination of ocular vessels, radiographic examination of the legs and feet for calcification of vessels and radiographic estimation of the size of the heart. Clinical examination comprised a search for thickened radial vessels, hypertension, enlargement of the heart, and acceleration of the aortic second sound. The percentage diagnosis based on each of the four methods of examination is then determined and, further, the percentage incidence obtained by grouping the various results. It is finally shown that with all four methods in any one case the incidence reaches 62% of cases so examined. This approximates very closely to the incidence determined at autopsy. The duration of the diabetic state seems to be important in the incidence of arteriosclerosis. The author's conclusions are summed up in Warren's observation that he has yet to see an autopsy on a diabetic, whose disease has lasted five years or more, free from arteriosclerosis, regardless of age.

Insulin Absorption.

KARL THIEL, ALFRED RUHNAU AND ARTUR UNGER, of the University Policlinic at Königsberg (*Deutsche Medizinische Wochenschrift*, June 29, 1934), describe some recent work done to ascertain the possibility of establishing "insulin depôts" from which insulin would be gradually absorbed, so that diabetes might be treated with, say, weekly doses, instead of with the daily or more frequent injections that are now necessary. Attempts have already been made to give insulin treatment by perlingual or endonasal application, by inhalation, by inunction and by rectal administration. By all these methods it has been found possible to reduce blood sugar, but not to regulate the rate of absorption, and the waste of insulin involved has been most uneconomical. Thus injection is unavoidable. Attention therefore has been given to the possibility of establishing insulin depôts, subcutaneous or intramuscular, and of retarding the absorption of the insulin from these. For this purpose various substances have been mixed with the insulin before injection. Strauch and Bernhardt tried a mixture of olive oil with metacholesterin and myrizine. Suranyi and Scalay and Skouge and Schrumpf tried lecithin, and the authors have experimented with helpin (a lecithin body) and with gelatine. Their experiments were done on animals and the results showed that absorption could be retarded so that doses of insulin could be given which, if given in the ordinary way would produce marked hypoglycæmia and which did not do so in these experiments. But there are many difficulties to be overcome before this can be of practical use in treatment. One difficulty is that there must be a tendency to more rapid absorption of insulin immediately after injection, when its concentration in the "depôt" is highest, than later on. Further, without knowing the rate of absorption, it would be difficult or impossible to regulate the diet appropriately. However, the authors do not dismiss the idea as entirely without value.

SURGERY.

Treatment of Tetanus.

F. W. TAYLOR (*The Journal of the American Medical Association*, March 24, 1934) gives some deductions arrived at from the study of 37 cases of undoubted tetanus. Tetanus is a symptom and sign complex resulting from the irritant effects on the central nervous system of the tetanus toxin which is elaborated at the focus of infection by the anaerobe *Clostridium tetani* and picked up from the blood stream, or from the focus of infection by the peripheral nerves or their lymphatics which transport it to the central nervous system. The organism will not live in healthy, sound tissue, but requires necrotic or partially devitalized tissue. A foreign body is usually present in the wound. Once the toxin is combined with the nerve cell, antitoxic serum cannot displace it. Only the toxin which is free in the blood or tissues can be neutralized. The damage produced in the nerve cells by tetanus toxin is not permanent, and even from the most desperate cases the recovery is complete. Death results from exhaustion, spasm of the glottis and convulsion, but not from neurological lesion. The patient dies from symptoms and the suggestion is made that if the distributing focus and symptoms are adequately handled, the disease will limit itself. The effort to treat the condition by unlimited doses of antitoxin has resulted in failure to treat the focus adequately. The advice that a healed wound should not be disturbed is wrong. Instances are given in which a foreign body embedded in pus and necrotic tissue has been found and the organism demonstrated on *post mortem* exploration of "healed wounds". In other cases, apparently hopeless after more than a week of the most intense serum therapy, patients have shown immediate improvement and have made an uninterrupted recovery following on the spontaneous and unexpected extrusion of a foreign body from a draining wound. In seventeen cases studied the "healed wound" was left undisturbed; twelve of these patients died. Patients with active tetanus should be admitted to hospital by way of the operating room. Where possible, the most logical treatment is the complete excision of the wound without entering the infected area. Since death is always due to symptoms, the prevention of them by the administration of sedatives is of prime importance. "Sodium amytal" and "Avertin" are recommended. The tendency has been to withhold them until severe symptoms develop. It is more rational to give sustaining doses, keeping the patient under narcosis at all times. The quiet, darkened room is of great importance. Fluid intake should be maintained at a high level and elimination closely watched. It seems unnecessary to administer the huge quantities of serum used at present. It is recommended that 30,000 to 60,000 units be given intramuscularly when the patient is first seen. This might be repeated if the case runs a protracted course.

Acute Osteomyelitis.

KEEN O. HALDEMAN (*Surgery, Gynecology and Obstetrics*, July, 1934) describes acute osteomyelitis. Early diagnosis and treatment is as important in osteomyelitis as in appendicitis, because in the former a policy of watchful waiting often leads to an unnecessarily extensive destruction of bone and sometimes even to loss of life. The earliest stages of osteomyelitis are understood rather imperfectly. Osteomyelitis is an infection caused by *Staphylococcus aureus* which travels through the blood stream and becomes localized at the end of a long bone. Early symptoms are pain, swelling, local heat, tenderness, a high fever, and a high white cell count. Within five to seven days of the onset of symptoms X ray examination may reveal a rarefaction of the cancellous bone near the epiphyseal line, which is apparent when compared with a film of the opposite side. An operation should be performed as soon as a diagnosis of probable osteomyelitis is made and should consist of drainage of the medullary cavity by means of a window removed from the cortex. The use of a vaseline pack and cast, as advocated by Orr, has proved very satisfactory, although good results are obtained by Dakin's irrigations or by the use of other frequently changed dressings. In some cases a considerable portion of the shaft will separate as sequestra and will be surrounded by newly formed bone (involucrum). The removal of sequestra should be attempted only when sufficient involucrum has formed to maintain the continuity of the bone, usually two or three months after the primary operation.

Special Articles on Treatment.

(Contributed by request.)

XLI.

THE TREATMENT OF GONORRHŒA IN THE FEMALE.

Besides the more commonplace and stereotyped conditions that we are regularly called upon to diagnose and then to treat successfully in the ordinary course of a general practice, we are confronted every now and again with a case which presents peculiar difficulties, and we are obliged for more than one reason to refer the patient to a specialist. The same form of procedure should be followed unhesitatingly with all people suspected to be suffering from a venereal disease unless the medical attendant is prepared to undertake the responsibility of investigating the situation thoroughly and then to deal with the infection in a competent and effective manner. In these days of social and economic enlightenment there is little need to stress the inestimable value of such efficient service to the patient, to her family, and even to the whole community.

In order to render this type of service to the public, the general practitioner will need to acquire some knowledge of a subject that has been completely ignored throughout the medical course and become experienced in the practice of a technique which may be learnt solely by the method of trial and error, just as many of us were wont to do—happily in days gone by—in order to achieve some degree of proficiency in the performance of a tonsillectomy or appendicectomy, and in the safe administration of anæsthetics.

Female patients harbouring a gonococcal infection should not be required to be sent to a specialist for a diagnosis, and as the general rule they much prefer to remain with their own doctor for treatment. Many of them are not wage-earners and consequently they cannot afford the higher fees, but they are ready to face the ordeal of thorough treatment in the care of a general practitioner who knows his work and to recompense him adequately for his services.

The clientele will probably consist of young girls from sixteen to eighteen years who have been unfortunate in the ignorance of their parents; young women in their twenties who have been unfortunate in the choice of their lover; and married women in the thirties tragically unfortunate in the unfaithfulness of their husband.

At the outset let me emphasize the necessity for keeping careful records of each case, preferably with the aid of a card system. Your own case registration number will serve to identify the patient when you are notifying the disease to the public health authority; to display upon the microscopic slides waiting to be stained and examined later in your own laboratory; and for the label upon the small bottle containing eight cubic centimetres of blood from an antecubital vein to be forwarded as soon as possible to a recognized pathologist in anticipation of a report concerning the Wassermann and complement fixation tests. Under the date of the first examination accurate notes should be made of the medical history, followed by a detailed description of the region which must come within your observation, a space being left for the pathological and serological findings as they come to hand.

No special or elaborate equipment is required to carry out this work, which can be fitted in without the slightest inconvenience at any time during the regular consultation hour. Already you have an examination table with a U-shaped recess to permit the free use of a speculum, and with a lower platform covered with corrugated rubber for the patient's feet and an enamel tray to rest upon. You have a sterilizer that will take a long pair of forceps, an electric head lamp or mirror to reflect the light from some other source and, lastly, an instrument table with two glass shelves. For general purposes are needed a Sims's, Fergusson's and very small Graves's vaginal specula, a pair of sponge-holding forceps, a volsellum with almost straight shaft and single grip, a complete set of uterine dilators, a set of fine lachrymal duct probes, and a pair of Cheatle's forceps (size 4 or 5) that will grasp anything from a large dish to a hypodermic needle.

With a clear picture in one's mind of the normal healthy appearances, a systematic search is made with the aid of the head-lamp in a darkened room for any deviation from the ideal conditions. Let us suppose that our patient is found to have scalding of the *labia majora* and internal surfaces of the thighs, a considerable amount of thin creamish-yellow discharge is visible at the vulva, a Bartholin's abscess is present on the left side, a bead of pus appears on expression of the right duct and of the urethral canal, a profuse yellow discharge is present in the vagina, and there is an extensive erosion of the cervix, the surface of which bleeds freely on abrasion. The microscopic smears have shown an abundance of well defined pus cells, several of them containing characteristic groups of the causal organism in various parts of every field, and the blood serum has at this stage failed to react to the complement deviation test.

The definite objective to be constantly in our thoughts is to render the patient non-infective within six weeks and to restore the affected parts to normal within four months. That is to say, the mucous membranes will regain their slatey pink colour, pathological discharge will be replaced by a small amount of thick creamish secretion, a bead of glairy mucus will be expressed from the vulvo-vaginal duct, and the cervical erosion will entirely disappear. If treatment is instituted early in the acute stage the disease may be arrested without a further extension of the infection to other common sites of election in the lower parts of the uro-genital tract, to the uterine appendages and to the pelvic peritoneum. The patient must be confined to bed throughout the first and perhaps the second menstrual period, as the higher portals of entry may be found open at this time and the epithelial surfaces in a favourable condition for the rapid migration of invading organisms to the happy realms above.

There may be isolated female patients with gonorrhœa who will tend to recover spontaneously without any interference whatever; but the vast majority of infections are destined to become chronic, complicated, and to remain a potent source of infection if stern measures are not taken at the earliest possible moment to eradicate the organisms completely from all breeding grounds within reach of our germicidal agencies.

The basic principles underlying the methods in the routine treatment presently to be described are summed up in the promotion of efficient drainage, frequent irrigation with mild antiseptic lotions, and the application of powerful germicides to the whole length and breadth of the urethral and cervical canals. To be effective, the treatment must be continuous, and the measures taken to counteract the disease must at all times be appropriate for each succeeding stage in the inflammatory reaction of the tissues to the gonococcal invasion. This is a point that needs to be clearly understood. After all, we are merely trying to assist Nature (from the host's point of view, of course!) and not setting out to perform miracles with an imposing array of drugs.

The patient under discussion has been reluctantly compelled to seek your advice and assistance from sheer anxiety occasioned by the painful and ever-increasing swelling in the left *labium majus*. With a kindly assurance of immediate relief, the swelling is incised, emptied of its contents, syringed out with "Flavine", and a hot fomentation is applied. You have already made substantial progress in winning the confidence of the unfortunate sufferer, an accomplishment that will materially assist you in the subsequent operations, besides enlisting the patient's willing cooperation throughout the trying ordeal of treatment for many weeks to come.

Meanwhile the diagnosis has been confirmed in your laboratory and arrangements are made to commence the routine treatment at an appointed hour on the next day.

With the aid of a text book anatomical pictures are shown to illustrate the disposition of the affected parts,

with special reference to the urethral orifice, the urethral canal and the bladder, and to explain simply the nature of the disease and the present danger of infection. All this is done because the patient must learn to carry out for herself an important part of the treatment. In the meantime the pharmacist has delivered to you an enamel douche can, four feet of rubber tubing, a vulcanite stop-cock, a Jacques's rubber catheter (Number 12) and a glass female catheter. You attach the tubing to the douche can, interposing the stop-cock between it and the expanded end of the Jacques's catheter, the other end of which is removed with scissors, and the glass catheter is inserted to complete the apparatus. A ten-ounce bottle of potassium permanganate solution is made up by the pharmacist so that one teaspoonful, when added to one pint of water, will give a dilution of 1 in 4,000. The bladder is first emptied and, light being thrown from a hand mirror, the anterior part of the urethra is irrigated with part of the lotion. Then the sterilized glass catheter is moved further on and the remainder flows into the bladder, to be evacuated later in the act of micturition. Within two or three days the patient is performing her daily task at home with a surprising facility. Later on, the strength of the permanganate solution is increased to 1 in 2,000.

The Bartholinitis.

The index finger of the left hand is laid flat upon the lower extremity of the *labium minus* (in our suppositious case the right side is affected) and the area of mucous membrane between this fold and the *ostium vaginæ* is placed slightly on the stretch. The orifice of the duct of Bartholin may be located by hooking the right index finger through the ostium and then exerting a forward pressure upon the lateral wall of the vagina so that a bead of pus is made to appear at the entrance to the duct. A fine lachrymal probe is inserted beneath the hood of mucous membrane which protects the narrow opening, and as it is rotated medially it enters the duct, passing downward and outward for a distance of one centimetre. The manœuvre is repeated with larger probes in graduation so as to break down any adhesions and dilate the duct before irrigating with "Flavine" (1 in 500), which is placed in a small "Record" syringe and injected twice a week through a hypodermic needle with a blunt point shaped like a cannula.

The Urethritis.

A suppurative inflammation arising from Skene's follicles may be treated in the way just described whenever it is possible to locate the duct orifices. So long as purulent discharge can be expressed from the urethral canal itself we must refrain from the contemplation of any heroic measures and must still depend upon the daily irrigation performed by the patient with the potassium permanganate solution; but it may be helpful to cleanse the urethra with "Melasol" (5% solution), which is an essential oil preparation derived from a species of ti-tree (*Melaleuca alternifolia*) and is said to be non-toxic and non-irritating. The solution may be injected through a curved glass blood transfusion cannula and is made to pass into the bladder.

When the acute inflammatory reaction has completely subsided, the urethral canal is, with infinite care, dilated by gently inserting a uterine sound and passing it along until it enters the bladder, in which position massage of infected urethral glands may be attempted with the index finger pressing against the anterior vaginal wall. The sound is slowly withdrawn to allow an aluminium swab-stick, closely wrapped with a fine texture of cotton wool dipped in silver nitrate (5% solution), to be passed quickly along the whole length of the canal. Eleven paintings are given at weekly intervals, but the strength of the solution is increased at once to 10%.

The Endocervicitis.

From the very beginning the cervical canal is treated weekly by inserting as far as the *os internum* an aluminium swab-stick steeped in "Flavine" (2% in saline solution), which is swept round the vaginal wall and vulval mucosa after the Fergusson's speculum has been withdrawn. Should the epithelium in the neighbourhood of the external os tend to become unhealthy from the irritant action of the drug, three or four applications of eucalyptus in sterile olive oil (10%) will be sufficient to heal any necrotic areas, so that the "Flavine" treatment may be resumed immediately. If at any time difficulty should be encountered in placing the medicated swab-stick well within the cervical canal, a Sims's speculum is inserted within the vagina, the anterior wall is pushed upwards with sponge-holding forceps, and the anterior lip of the cervix is firmly grasped with a volsellum. A small uterine dilator is carefully insinuated through the narrow opening to find its way along the canal until it rides up against the internal os. The swab-stick carrying the "Flavine" solution can now be fully inserted with comparative ease.

Dilatation of the Os Internum.

At the end of two months a further stage of treatment to the cervix may be safely undertaken, and it is here rather confidently suggested that when these tissues are deeply infected with the gonococcus the cervix itself is soft to the touch, the canal is patulous, and the internal os offers little or no resistance to the passage of a metal sound. If an opening into the cavity of the uterus cannot be effected with very moderate pressure, there must be no further attempt to force an entry, because it is likely that the infection is of a mild type, in which case the treatment previously outlined will be sufficient.

In the greater number of cases a small sound must be passed throughout the entire length of the cervical canal, to be quickly replaced by an aluminium swab-stick impregnated with iodized phenol (1 to 5). In the event of some of the corrosive solution being carelessly allowed to bespatter the external genitalia, the immediate application of a cotton wool swab soaked in a saturated solution of magnesium sulphate will neutralize any harmful effects.

It is further suggested that as the cervical treatment proceeds to a successful issue, the internal os will tend to harden and close up, the cervix will slowly regain its firm consistency, the erosion will gradually disappear, and muco-purulent discharge will be replaced in time by the normal amount of creamish secretion usually to be found in a healthy person.

One or two points still remain to be touched upon. First of all, it is a wise precaution to make a careful bimanual examination as a regular routine before proceeding to the delicate operation of passing a sound beyond the internal os. It is extremely helpful to have some idea of the length of the cervix in relation to the size of the body of the uterus as well as the relative position of these parts to one another; and then one must always be mindful of the possibility of an early pregnancy, which naturally contraindicates any interference with the internal os; but all other procedures necessary for efficient treatment must be conscientiously persevered with, as a great deal depends upon complete disinfection before the onset of labour and the vulnerable *post partum* period.

The diplococcus of Neisser is of a shy and retiring disposition. Very quietly it awaits the opportunity to advance, frequently without giving any sign to indicate its presence. However firmly it may be entrenched, it offers little resistance to organized opposition, and if boldly attacked whilst its strongholds are within reach of our heavy artillery, a decisive victory will be gained for the cause of preventive medicine.

K. S. MacArthur Brown, M.B., Ch.M. (Sydney),
Honorary Medical Officer, Parramatta District Hospital, New South Wales.

Bibliography.

Frank Kidd and A. Malcolm Simpson: "Common Infections of the Female Urethra and Cervix."

K. S. MacArthur Brown: "The Incidence, Diagnosis and Control of Venereal Infections in Girls Committed to Institutional Care", "Transactions of the Australasian Medical Congress (British Medical Association)", 1929.

British Medical Association News.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been elected members of the Victorian Branch of the British Medical Association:

McLean, Allan Bell, M.B., B.S., 1933 (Univ. Melbourne), Alfred Hospital, Prahran.

Bowden, Keith Macrae, M.B., B.S., 1933 (Univ. Melbourne), Melbourne Hospital, Melbourne, C.1.

Public Health.

THE OCCURRENCE OF LEPTOSPIROSIS (WEIL'S DISEASE) IN AUSTRALIA.

SOME prominence has recently been given in the newspapers to the occurrence of leptospirosis in north Queensland. From a public health point of view the occurrence of this disease is of the greatest importance. Dr. G. C. Morrissey, of Ingham, Queensland, has forwarded the following report, in which the facts are clearly stated. In a subsequent issue we hope to publish an article from the School of Public Health and Tropical Medicine of the University of Sydney, dealing with the laboratory and public health aspects of the problem.

Early in October, 1933, there appeared in the Ingham district the first of a series of cases of a disease which was new to these parts. Ordinary influenza affecting all classes and areas was prevalent at the time and was of a mild type.

This new disease soon established itself as a definite entity. From the beginning of October, 1933, until early in February, 1934, there were forty cases which all bore a striking resemblance to each other.

All the patients gave a similar history of the onset of illness. There was shivering followed by fever. Intense headache and generalized bodily pains were present early.

Most of the patients were seen early—not later than the second day of illness. On examination the patient had fever nearly to 39·4° C. (103° F.). The pulse was slow, in the region of 70 to 80 per minute. The face showed a dull, heavy expression and the conjunctivæ were very injected in all cases. The tongue was coated, showing a brown furred appearance.

Thirst was usually intense, and there was loss of appetite. Enlarged axillary glands were a constant symptom.

The urine showed no abnormal contents. Blood examination in these cases revealed a polymorphonuclear leucocytosis. A very marked feature was the extreme mental depression shown in all cases. No particular rash was noticed.

The above brief history was typical of all cases until the fifth day. On this day the temperature fell to normal. In the majority of cases, twenty-four in number, there was then instituted a gradual amelioration of headache and generalized pains, appetite improved, and a convalescence of two weeks or longer supervened. In a few cases the illness proved so debilitating that work was not possible for many weeks.

In the remaining sixteen cases jaundice appeared, coinciding with the fall of temperature on the fifth day, and was first noticed in the eyes. The jaundice rapidly became intense, affecting the whole body surface. Vomiting was general, varying in severity; in the worst cases the vomiting was intractable and the vomitus was black, containing blood. Hiccup occurred in some cases and was a sign of ill omen. Blood and bile appeared in the urine. Epistaxis and bleeding from the gums were common, but not constant. Petechial hæmorrhages were noted in several cases.

All patients in this group had tenderness over the liver and spleen, which were not noticeably enlarged.

Four of these patients died before the end of the second week of their illness. They exhibited mental symptoms varying from a low muttering delirium to acute mania. Almost complete suppression of urine was noticed at the later stages.

The twelve remaining in this group made slow recoveries. The jaundice slowly disappeared, appetite returned, usually marked by a craving for fruit, particularly for pears and oranges. All were very shaken men for many weeks afterwards.

No *post mortem* examinations were obtainable.

Several specimens of blood and urine were sent to the Commonwealth Laboratory, Townsville, for diagnostic purposes, the necessary facilities not being present in Ingham. Findings of these were of a negative nature, due probably to the time taken for transit.

Nevertheless we were strongly of opinion that the outbreak was one of leptospirosis, and I brought the matter under the notice of the Health Department, anticipating a recurrence.

On June 26, 1934, the recurrence duly appeared, the outbreak lasting about three weeks. There were thirty-two cases, all typical of the first outbreak. Four patients became jaundiced and two died.

A *post mortem* examination was made by Dr. T. J. Cotter, of the Commonwealth Health Laboratory, Townsville, about one hour after death in the first fatal case. There was no marked change in the appearance of the liver. The spleen was a disintegrating mass that fell to pieces on handling. There was a horseshoe kidney that showed hæmorrhages into the pelvis, and it was bile-stained throughout. The intestines, mesentery and subcutaneous tissues were deeply jaundiced; the lungs presented a hæmorrhagic appearance. Specimens were sent to the University of Sydney for microscopic examination, where the results obtained were consistent with Weil's disease.

A *post mortem* examination was performed by me on the second fatal case, and it gave similar microscopic findings, except that the spleen was not in such an advanced state of disintegration.

Beginning on August 3, 1934, there was a further recurrence, when eighty cases were noticed over a period of ten days. None of these patients became jaundiced and none died. Relapses of a mild type occurred in three cases shortly after the initial attack.

On September 13, 1934, a new patient was seen who had been sick for four days. He became jaundiced on the fifth day and died on the eighth day. At the *post mortem* examination I found similar appearances to those mentioned above. This case was followed by five mild cases.

The appearance of this succession of outbreaks of disease was accompanied by a very suggestive set of circumstances.

All patients were adult males in the prime of life. Ninety *per centum* were cane-cutters and the remainder were farmers intimately concerned with work in the cane paddocks.

For the past twelve months and more there has been an abnormal amount of rain and wet days. There has been a great increase of rats in the cane paddocks over the last two years, amounting to a plague this year. Pools of stagnant water and muddy paddocks are met with in most of the farms. Scarifications of arms and legs from sugar-cane contact are the rule. Adequate protection of the hands and arms and sound footwear are the exception.

Laboratory Investigations.

Urgent representations were made to the Health Department of Queensland when the June outbreak occurred. As a result, Dr. Cotter, of the Commonwealth Health Laboratory, Townsville, visited Ingham on July 10 and inoculated guinea-pigs from several cases, using blood, urine and emulsions from various organs. He paid a second visit on August 7, 1934, for a similar purpose.

The Health Department also coopted the services of Dr. W. Sawers, of the Commonwealth Health Department, Sydney, who arrived in Ingham with his assistant, Mr. Tremayne, on August 14, 1934. On August 15 he identified gyrating leptospiræ in the centrifuged urine of a patient.

On August 18 he identified leptospiræ in smears from a rat's kidney. Practically simultaneously, on August 15, in Townsville, Dr. Cotter identified typical leptospiræ from a guinea-pig inoculated by him from a patient on August 7. This guinea-pig showed a text book picture of the *post mortem* appearances occurring in such an animal suffering from Weil's disease.

On August 27 Dr. Sawers demonstrated leptospiræ from a guinea-pig inoculated from a rat's kidney, this guinea-pig also showing very typical appearances.

Mr. Tremayne killed a guinea-pig on September 18, nineteen days after its exposure to water and slime in a cane paddock. The animal became sick before being killed. The lungs had a typical hæmorrhagic appearance and gyrating organisms similar to those previously found were seen.

Each outbreak followed a considerable downpour of rain which was succeeded by a dry spell. One week to ten days of dry weather following heavy rain appeared to be the period necessary to initiate a fresh outbreak. The period of incubation in man we had no method of determining.

The sequence of events appeared to be as follows. First there was heavy rain, creating a suitable medium in the soil for the organisms constantly being deposited by the rats' urine. Then a short period of dry weather promoted the generation of an increasingly virulent strain, sufficiently virulent to produce the disease in man.

There was certainly a variance in virulence of the disease in the different outbreaks, as evidenced by the absence of jaundice and deaths in the August cases.

One definite fact is of great interest: all patients who escaped jaundice recovered, although some were very ill.

The intense injection of the conjunctivæ seen in all cases, to my mind, was a most important diagnostic sign.

Dr. Sawers and Mr. Tremayne to date have examined sixty rats, twenty of which were infected with leptospiræ. One of the seven bandicoots examined showed definite infection. They examined the urine of twenty-five convalescent patients, the remnants of the August outbreak, and eleven of these exhibited leptospiræ in the urine; nine others had suggestive gyrating forms and five were negative.

The leptospiræ demonstrated in the above-mentioned experiments varied from 7μ to 12μ in length.

Treatment.

No specific serum was obtainable, but supplies are expected shortly. Convalescent serum was used without effect in one case, but for various reasons it was hard to obtain.

Normal saline solution and glucose given by all available routes appeared to be of some value.

Calcium therapy was used with doubtful benefit; otherwise treatment was necessarily symptomatic. Arsenic compounds are said to be worse than useless, having no effect on the organism. Bismuth "Yatren A" is claimed to be of use as a prophylactic agent in laboratory experiments, but does not appear to have been used otherwise.

Discussion.

I have made a full report of this matter because it is of undoubted importance in this part of north Queensland and throughout the northern sugar-cane areas. It is the first outbreak of any importance of Weil's disease in Australia.

Taking the cane-cutters alone, a population of about eight hundred has suffered an incidence of this disease of 18% in just under one year.

The rat population appears to be more or less a natural host for the leptospiræ concerned, and with itinerant convalescent carriers, the chances of spread to other districts are evident. One convalescent showed organisms in the urine eight weeks after the onset of the disease. Carriers of ninety days' standing have been reported in other countries.

Some form of control of the movements of these carriers is desirable, but cannot at present be enforced. Rat destruction on a large scale is also desirable, but presents an immense economic problem.

Burning of sugar-cane just before harvesting is being tried out with a view to sterilizing the soil temporarily. This is based on the great probability of the source of infection lying in the slime and silt in the fields. The rats urinate in these and institute a culture of increasing virulence, which ultimately invades the human through abrasions in the skin.

Heat of 55° C. destroys the leptospiræ, hence the idea of burning of sugar-cane before harvesting. Fertilizing fields with calcium cyanide has been reported as a successful means of ridding the soil of leptospiræ.

These recurring outbreaks of leptospirosis are naturally of great interest and importance to us. The matter, however, goes further. Recently a rat from Innisfail, one hundred miles further north, was found by Dr. Cotter to be carrying leptospiræ. It seems obviously worth while that an extensive examination of rats should be made throughout this State to ascertain whether the rat-carrier problem is not more or less universal. This seems quite possible.

Throughout north Queensland there occur a number of undifferentiated fevers, differing somewhat in various districts, which usually are called by non-committal names. "Coastal fever" is a favourite cloak for the general lack of knowledge.

It is quite likely that these diseases, in part at least, are due to leptospirosis, possibly of a variant strain. Similar climatic conditions obtain and similar classes of people are attacked. Early and extensive investigation is called for.

Dr. Cotter did an immense amount of laboratory work under difficulties, mainly due to the remoteness of this place from Townsville. Persevering, however, he was finally able to demonstrate the causative organism in the laboratory.

Dr. Sawers, in his three weeks at Ingham, established the diagnosis of the disease from all aspects—to my mind a great achievement. Similar results abroad in a more limited field of investigation occupied a much longer period. Local circumstances, industrial, economic and hygienic, not necessarily in that order, called for expedition, which was entirely forthcoming. The very definite results of the work of Dr. Cotter and Dr. Sawers were perhaps the most notable features of the melancholy visitation.

The prompt and efficient investigations made by the above-mentioned officers of the Commonwealth Department of Health was made possible by the whole-hearted cooperation of Dr. F. McCallum, Chief Quarantine Officer, Commonwealth Department of Health, Queensland.

My colleague, Dr. T. Leckie, of Ingham, has cooperated in the drafting of this report and he has held a definite opinion as to the identity of the disease from a very early stage in its appearance in this district.

HELMINTHIASIS IN VICTORIA.

The attention of medical practitioners in Victoria is drawn to a notice appearing in the *Victoria Government Gazette* of July 4, 1934. Helminthiasis due to infestation with *Tænia saginata* or with *Tænia solium* has been declared to be an infectious disease, and a notifiable infectious disease, within the meaning of the *Health Acts*.

Correspondence.

TOXIC GOITRE.

Sir: It is a remarkable trait in human nature, and medical men in particular, that the older they get the more they resent any views that run counter to their old established teachings. Dr. Poate is quite satisfied in his own mind that my ideas on goitre are not only wrong, but dangerous, as they do not coincide with those accepted by the rest of the world. Fortunately for Dr. Poate and

the large majority of medical men, there are some who give a great amount of time and thought to certain subjects and by so doing advance their profession, but I have never known of one yet that did not get abused and rapped over the knuckles by the men of his period. It has not been quite the armchair hobby that Dr. Poate has imagined it to be, as I have done quite a lot of research work on the matter, to say nothing of over twelve years' out-patient work, where many forms of treatment have been carried out. I think I am perfectly safe in saying that no one in Australia has given anything like the amount of time and thought to this question that I have. The views I express are the outcome of this work, backed up by the numbers of cases treated. Sarcasm and satire are quite out of place in our medical discussions. It is up to Dr. Poate to prove me wrong. Three days ago a female came to see me. She had marked thyreotoxic symptoms and slight exophthalmos, but no evidence of thyreoid enlargement and nothing to suggest a substernal thyreoid, as the bottom of the thyreoid could be defined. She had been to two of our large Melbourne hospitals, where she was advised operation, as well as by a surgeon privately. At one hospital she said she saw about ten different doctors and several at the other. On examination she had five molars decayed down to the gum level from which pus was oozing up and which subsequently showed root abscesses. Pus could be expressed from her tonsils and pus was running down from her sinuses, yet not one of these medical men had bothered to investigate one of these sources of infection. I have not the slightest doubt in my mind that she will get rapidly well, as hundreds of others have, when these obvious evils are corrected. I doubt if there are many or any out here who have had the opportunity of observing the number of goitre cases over the period of years that I have had. I presume that Dr. Poate has had the opportunity of seeing a goitre disappear after a focus of infection has been removed, or perhaps he has never given one a chance, being so convinced that operation is the only thing for it. At least we will take it for granted that such is a possibility. Has he ever thought about why it disappears? I have no doubt that he has also seen other swellings and tumours vanish likewise. Usually, when the causation of an enlargement is removed, the body absorbs the unneeded tissues. This happens in goitre also, but there are two things it will not deal with, and they are adenomata and cysts. My own experience has been that the rest of the superfluous tissue gradually vanishes, providing that all foci of infection are cleared up; but the clearing up must be complete. On one occasion a small piece of tonsil, no larger than a pea, which had been left behind, was the cause of a relapse, with complete recovery on removal.

I have never seen a single one of these cases come back with any enlargement or toxic symptoms, except where a piece of tonsil or some other focus has been left behind. It has not been my experience to see adenoma or cysts cause thyreotoxic symptoms where there is no infection, although for years I have been on the look-out for it and expecting it. I have seen many lie dormant and, except for æsthetic appearances, cause no trouble. The microscopic appearances of a thyreoid section has little bearing on the ultimate state of a goitre. If cystic formation is established it will remain, but if all irritation is removed absorption of the superfluous tissues takes place.

Dr. Poate should be old enough to know that all types of thyreoid verge one into another, and the cause of one is the cause of the majority. We are past the days when pathological conditions have a multiplicity of causes, and if it can be shown that goitres are cured by removal of focal infections, on the face of it it is not sane to imagine any other cause. The thyreoid, like every other organ, is liable to the same infections. It would be the height of absurdity to think otherwise. We have a fair idea of what happens to kidneys when they are involved with infections, and we are now getting some idea what results in thyreoids when the same thing happens. The iodine mechanism is upset and the works run riot. Surely Dr. Poate does not suggest that operation is the end-all in the treatment of goitre! It is useful to help us on the road, but it is the resource of the ignorant, an acknowledgement of the lack of any known causation. Somebody must stir himself to find that cause and, having found it, to do his best to make the rest of his *confrères* believe it, however much they dig at him. I should like to ask Dr. Poate what he has done in that direction. For a man to go on blindly operating and not seeking the why and the wherefore of the disease he is operating on is, to my mind, not understandable. The future has a wonderful way of laying bare the truth, and I hope Dr. Poate lives long enough to see the truth of goitre exposed. Differences of opinion and criticism are excellent, but let the criticism be confined to the subject matter and not the man, as it does not reflect any credit to the critic.

Yours, etc.,

Sydney Pern.

12, Collins Street,
Melbourne,
October 3, 1934.

THE PERCENTAGE ESTIMATION OF ALBUMIN IN URINE, AND "SIMPLICITY".

Sir: Your leading article of August 11, 1934, "Simplicity", and your Current Comment article on albuminuria, of the same date, were recalled to my mind by the episode about to be mentioned.

You make mention of Schopenhauer, Hazlitt and Tennyson and their definition of simplicity. You also mention Simple Simon and his particular simplicity. You say of medical practitioners who have erudition and wisdom: "By the simplicity of their methods shall ye know them."

You warn the student of medicine (and we are all students to the end of our career) to acquire a sense of proportion and not to use that easier road, the road of the laboratory, whereby we forsake the road of the senses.

In a report on a specimen of urine from a suspected case of acute nephritis I stated that the percentage of albumin was high (0·6%). The general practitioner who received this report rang up to say, in quite a friendly way, that I had evidently made a bloomer. Surely I must have meant 60%, because the urine had boiled solid. Quite an argument arose; and even after I had quoted from one of the classics on laboratory methods that even 1% of albumin was so rare that it might not be met with more than once in a lifetime, he stuck to his boiling test and challenged me to bring the matter up at a medical meeting. I suggested that I would bring it up in the correspondence column, should the Editor consider the matter worthy of his valuable space.

I shall quote from well known books on laboratory methods:

> It is of the utmost importance to have an approximate idea of the quantity of albumin in any given case, and too many errors are made in this respect.
>
> It is by no means rare to hear of a urine containing 25, 40 or even 50% of albumin. Yet such statements are absolutely misleading. As a matter of fact, one-tenth of one per cent. is a moderate amount of albumin; half of one per cent. is a large amount, and it is only in comparatively rare cases that one per cent. or more is present. More than two per cent. has probably never been found.

The boiling test, with which the above high percentages are obtained, is, from a qualitative point of view, one of the most accurate and sensitive tests we have, but for quantitative purposes the degree of solidity produced cannot be taken seriously as a guide for comparative purposes, except when comparing a mere trace with a large amount.

Nor is the boiling test so simple a performance if nucleo-albumin, mucin *et cetera* are not to cloud the readings. The classic test is as follows: "Fill a test tube two-thirds full of filtered urine. Add about one-sixth of its volume of a saturated aqueous solution of sodium chloride. Add 5 to 10 drops of a 50% glacial acetic acid solution. Then heat gently for about half a minute." For ordinary purposes: "Fill a test tube about one-quarter full of urine, then boil thoroughly, then add 2 to 3 drops of 50% glacial acetic

acid solution." The amount of cloudiness produced varies with the amount of albumin present, but only up to a certain degree, beyond which the naked eye inspection will no longer differentiate.

It may be argued that, for everyday clinical purposes, the boiling test gives all the information required during the progress of any one particular case. But when we consider that such comparisons as 0·09% and 0·2% enable us to differentiate between the various types of Bright's disease or to indicate when one type merges into another, one cannot look upon the boiling test as greatly informative.

What test, then, should replace the boiling test? For accuracy and convenience, be it at the bedside, in the consulting room, or in the laboratory, the nitric acid test is *facile princeps*. Unfortunately it is generally fought shy of; strange to say, because it stains the fingers. This is a pity. If the acid is kept in a glass-stoppered bottle and if the drop left at the mouth of the bottle after pouring out is picked up with the stopper, to be returned with the stopper into the bottle, no acid will trickle down the side of the bottle to cause trouble.

The nitric acid test must be skilfully performed if it is to give the accurate readings it is capable of. The secret lies in the bringing together of acid and urine without the slightest intermingling of the two fluids. A conical glass is used, with very slanting sides; this has two advantages: even with a small amount of the acid a large surface is presented on top; the urine will flow very slowly down the side. The acid is poured into the glass; the urine is taken up in a pipette and is allowed to run down the side very, very slowly until a layer about half an inch deep is superimposed on the acid.

If albumin is present there will appear at the junction of the two liquids a white layer. Any cloudiness or discoloration which appears, but is within the substance of either liquid, is not albumin. Hence the necessity for adding the urine in a manner which places the two liquids one exactly above the other. If there is any intermingling by shaking the glass or by running the urine in too quickly, an albuminous layer may be misinterpreted for a non-albuminous cloudiness.

The layer formed by albumin lies like a wad, a white disk, interposed between the two fluids. That disk may appear immediately or, if albumin is present in very small quantity, it may take from two to three minutes to make its appearance. It is therefore necessary to wait for three minutes before a negative report is given, and in order to detect the disk which represents a mere trace of albumin it is necessary to inspect the glass, while held up, against a dark background.

The time of appearance of the disk, together with the varying thickness of the disk, gives a very definite idea of the amount of albumin present.

If a percentage estimation is advisable in order to make a differential diagnosis of the type in question, exactly the same examination is made, but with various dilutions of the urine. It is best to begin with a dilution of 1 in 30. If with this dilution a faint disk appears only after two or three minutes, the dilution, which is 30, is multiplied by 0·0033, which gives 0·099 and can be read as 0·1%. Should the disk appear at once in the dilution of 1 in 30, then dilutions of 1 in 60, 1 in 90 *et cetera* are made until that dilution is found which gives a faint disk only after two or three minutes. If that dilution is 90, the percentage will be 90 × 0·0033, which is 0·297%. A reddish discoloration in the acid may be bilirubin or urorosein. A whitish ring in the urine above the junction may be due to albumoses.

One almost feels like apologizing for taking up your valuable space with all this detail of so simple a test. However, as a pathologist, I could not resist the temptation to quote the above episode as an indication that the "road of the laboratory" lies well within the "road of the senses".

Yours, etc.,

Alfred E. Finckh.

227, Macquarie Street,
Sydney,
October 4, 1934.

NEWSPAPER PUBLICITY AND THE ROYAL AUSTRALASIAN COLLEGE OF SURGEONS.

Sir: When the Royal Australasian College of Surgeons was founded, its constitution contained a clause which stated that one of the objects was to "educate the public" as to the position that surgery should occupy.

Much feeling was shown in Victoria against this clause, especially by the General Practitioners' Section of the British Medical Association, of which I was chairman, and written assurances were given by the College Council that this clause meant that the publicity intended was to be indirectly through the medical profession, and if this were successful any communication to the public would be unnecessary.

Subsequently, the then Secretary of the College, in an address given to members of the Victorian Branch of the British Medical Association, stated that, on account of the misunderstanding of this clause, it had been excised from the constitution when the College was incorporated. He went further and stated that another clause, "to safeguard the welfare of the community by indicating that its fellows have attained a high standard of surgical competency and are of high character", had also been withdrawn.

The General Practitioners' Section felt that, with these two clauses withdrawn, much objection to the College, which at its outset seemed to threaten disunion in the profession, was likely to be diminished. It was not long, however, before the General Practitioners' Section vanished, and every congress of the College of Surgeons was conspicuous by its propaganda. The culminating point is reached by the declaration of Mr. Julian Smith, Junior, who, speaking on behalf of the Council of the College, states that it "feels confident that the public expression of the ideals of professional conduct held in the President's address must be upheld by every member of the profession". I am sure that every member of the profession will wish an explanation of the reasons why the Council of the College has broken its written word. Should it still desire to educate the public, then the reasons for its change of policy should have first been given to the British Medical Association. It was to that body that the promise not to do so was given, and it is only cricket that a reversal of policy, with reasons for so doing, should be first notified to the Federal Council of the British Medical Association before the education of the public is attempted.

Yours, etc.,

D. Roseby.

339, Church Street,
Richmond Hill,
Victoria,
October 3, 1934.

Obituary.

MATTHEW McNAMARA.

We regret to announce the death of Dr. Matthew McNamara, which occurred at Brisbane, Queensland, on September 29, 1934.

CHISHOLM ROSS.

We regret to announce the death of Dr. Chisholm Ross, which occurred at North Sydney, New South Wales, on October 6, 1934.

Books Received.

GREEN'S MANUAL OF PATHOLOGY, Fifteenth Edition, revised and enlarged by H. W. C. Vines, M.A., M.D.; 1934. London: Baillière, Tindall and Cox. Super Royal 8vo., pp. 940, with 8 coloured plates and 425 illustrations. Price: 25s. net.

URINARY ANALYSIS AND DIAGNOSIS BY MICROSCOPICAL AND CHEMICAL EXAMINATION, by L. Heitzmann, M.D.; Sixth Edition; 1934. London: Baillière, Tindall and Cox. Royal 8vo., pp. 404, with 131 illustrations. Price: 22s. 6d. net.

TEXTBOOK OF ABNORMAL PSYCHOLOGY, by R. M. Dorcus and G. W. Shaffer; 1934. London: George Allen and Unwin. Royal 8vo., pp. 402, with illustrations. Price: 16s. net.

DIFFUSE SCLEROSIS (ENCEPHALITIS PERIAXIALIS DIFFUSA), by L. Bouman, M.D.; 1934. Bristol: John Wright and Sons, Limited. Demy 8vo., pp. 164, with 64 illustrations. Price: 15s. net.

Diary for the Month.

Oct. 16.—Tasmanian Branch, B.M.A.: Council.
Oct. 16.—New South Wales Branch, B.M.A.: Ethics Committee.
Oct. 17.—Western Australian Branch, B.M.A.: Branch.
Oct. 17.—Victorian Branch, B.M.A.: Clinical Meeting.
Oct. 18.—New South Wales Branch, B.M.A.: Clinical Meeting.
Oct. 23.—New South Wales Branch, B.M.A.: Medical Politics Committee.
Oct. 24.—Victorian Branch, B.M.A.: Council.
Oct. 25.—New South Wales Branch, B.M.A.: Branch.
Oct. 25.—South Australian Branch, B.M.A.: Branch.
Oct. 26.—Queensland Branch, B.M.A.: Council.

Medical Appointments.

Dr. H. S. Harper (B.M.A.) has been appointed Medical Superintendent of the Mossman Hospital, Queensland.

* * *

Dr. S. Douglas has been appointed Medical Officer of Health by the Narrogin Municipal Council, Western Australia.

* * *

Dr. F. L. Nicholl has been appointed Government Medical Officer at Paterson, New South Wales.

* * *

Dr. E. B. Jones (B.M.A.) has been appointed Medical Officer, Office of the Director-General of Public Health, New South Wales.

* * *

Dr. O. N. Walker (B.M.A.) has been appointed Medical Officer of Health by the Brookton Local Board of Health, Western Australia.

* * *

Dr. A. Hinchley (B.M.A.) has been appointed Medical Officer of Health by the Cue-Day Dawn Road Board, Western Australia.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser", pages xiii, xiv, xv.

Austin Hospital for Cancer and Chronic Diseases, Heidelberg, Victoria: Resident Medical Officer, Honorary Officers.

Bundaberg Hospital, Bundaberg, Queensland: Resident Medical Superintendent.

Children's Hospital, Carlton, Victoria: Honorary Officers.

Children's Hospital (Incorporated), Perth, Western Australia: Junior Resident Medical Officers.

Inspector-General of Hospitals' Department, Adelaide, South Australia: Resident Medical Officers.

Launceston Public Hospital, Launceston, Tasmania: Resident Medical Officers.

Perth Hospital, Perth, Western Australia: Resident Medical Officers.

Royal Prince Alfred Hospital, Sydney, New South Wales: Honorary Officers.

Medical Appointments: Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square London, W.C.1.

BRANCH.	APPOINTMENTS.
New South Wales: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
Victorian: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
Queensland: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associated Friendly Societies' Medical Institute. Chillagoe Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL are advised, in their own interests, to submit a copy of their agreement to the Council before signing. Lower Burdekin District Hospital, Ayr.
South Australian: Secretary, 207, North Terrace, Adelaide.	Officer of Health, District Council of Elliston. All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
Western Australian: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
New Zealand (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to The Medical Journal of Australia alone, unless the contrary be stated.

All communications should be addressed to "The Editor", The Medical Journal of Australia, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

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Subscription Rates.—Medical students and others not receiving The Medical Journal of Australia in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad *per annum* payable in advance.